# FINAL EXAMINATIONS EXAMINERS' COMMENTS SUGGESTED SOLUTIONS

December 1984 March/June 1985

CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA



Vancouver B.C. September 1985

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#### PREFACE

This booklet contains reprints of the Final Examinations and Suggested Solutions, for all the courses offered by the Certified General Accountants' Association for the Academic Year. In most cases, the Examiner has provided comments on the performance to emphasize the areas of difficulty, trends or points of interest.

The purpose of publishing these Final Examinations and Suggested Solutions is to give students an indication of the degree of complexity of the examinations.

These examinations are not intended as an indication of the total body of knowledge that a student is expected to have mastered for the applicable course. Suggested Solutions to an examination may give only an outline of the answers. Students would be required to discuss the points to demonstrate their understanding.

Users of this booklet should realize that certain types of questions may not be applicable to their current courses because of changes in course content. In many cases, particularly in the Income Tax and Law courses, the Suggested Solutions to some questions and references to texts, lesson notes or statutes will be applicable only in the year published because of subsequent changes to these course materials or to the relevant statutes.

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#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### ACCOUNTING 101 EXAMINATION December, 1984

Marks		Time: 3 Hours
10	Q.1	For each of the following statements, indicate whether you agree or disagree with the comment and briefly justify your answer.
	(2)	(a) Depreciation of an asset is a convenient way to set aside cash for acquiring new assets in the future.
	(2)	(b) For a firm employing the accrual basis of measuring income, adjusting entries are

- unnecessary.

  (2) (c) For a corporation, the balance of retained earnings is always equal to the balance of cash.
- (2) (d) To debit an account is to increase its balance.
- (2) (e) One of the advantages for a business entity to incorporate is "limited liability".
- Q.2 (a) The trial balance before adjustment for the Track-Lite Company shows the following balances:

	DK	CIC
Accounts receivable	\$36,000	
Allowance for doubtful accounts	600	
Sales		\$205,000
Sales returns and allowances	1,000	

#### REQUIRED:

Using the data above, give the journal entry to record each of the following independent cases:

- (3) i) The company wants to maintain the Allowance for Doubtful Accounts at 2% of gross accounts receivable.
- (3) ii) The company wants to increase the Allowance for Doubtful Accounts by 1% of net sales.
  - (b) Strider Inc. supplies Gandalf Enterprises with a necessary component which is used by Gandalf to manufacture its finished product. Upon receipt of the last shipment of the component, Gandalf had insufficient cash on hand to pay Strider. Consequently Gandalf gave Strider a \$2,000, 18% note, due in 3 months.

#### REQUIRED:

- (3) i) Record the transaction on Strider Inc.'s books.
- (3) ii) Record the transaction on Gandalf Enterprises' books.
- (3) iii) How much cash will Strider receive if Gandalf pays off the note in full on its due date?

Q.3 (a) The following are July inventory data for Jones Company, which uses periodic inventory procedures.

July 1 (Beginning Inventory) 200 units @ \$40 per unit

Date	Purchases	Sales
July 9	50 units @ \$50 per unit	
July 14		80 units
July 15	100 units @ \$60 per unit	
July 20	100 units @ \$65 per unit	
July 26	C voo por anno	150 units

# REQUIRED:

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- i) Compute the ending inventory on July 31 using:
- (2) (a) first-in, first-out (FIFO):
- (2) (b) last-in, first-out (LIFO);
- (2) (c) weighted-average.
- (2) ii) Compute the cost of goods sold using the first-in, first-out (FIFO) method.
  - (b) The Winter Company has a calendar year accounting period. The following errors were discovered in 1984.

The December 31, 1982 merchandise inventory was understated by \$20,000.

Accrued interest of \$500 on notes receivable at December 31, 1983 was not recorded until the cash for the interest was received in March 1984.

#### REQUIRED:

- (2) i) Compute the effect of each error on the 1983 net income.
- (2) ii) Compute the effect of each error on the December 31, 1983 balance sheet items.

Q.4 The Olsen Company is authorized to issue 50,000 shares of no par value common stock and 10,000 shares of no par value preferred stock. At the beginning of 1983, 30,000 shares of common stock (issued at \$17 per share) and 3,000 shares of preferred stock (issued at \$109 per share) were outstanding. Retained earnings at the beginning of the year had a balance of \$120,000. During 1983, the following transactions took place:

1983	
January 1	Accepted a donation of a building and land to open a new warehouse. The building was valued at \$18,000 and the land at \$2,000.
April 2	Issued 400 shares of preferred stock at \$112 per share.
June 20	Declared a \$5 per share dividend on the preferred stock and a \$.25 per share dividend on the common stock.
June 30	Paid the dividend declared on June 20.
September 5	Accepted a subscription contract for 1,500 shares of common stock at \$20 per share with 25% as a down payment and the balance due on October 31.
October 31	Received the balance due on the September 5 subscription contract and issued the 1,500 shares.
December 10	Declared a 2 for 1 stock split on the common stock increasing the authorized shares to 100,000.
December 31	Net Income for the year was \$75,000.

# REQUIRED:

- (15) (a) Prepare journal entries for the above transactions where necessary. No explanations are required.
- (5) (b) Prepare the Shareholders' Equity section of the balance sheet of Olsen Company at the end of the fiscal year (1983).

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Q.5 Several years ago, the Yellowstone Corporation issued bonds having a maturity value of \$100,000 on May 1, 1982. A portion of the amortization table relating to the issue appears below.

	Interest Payment	Interest Expense	Premium Amortization	Carrying Value
November 1, 1979				\$102,194.99
May 1, 1980	\$5,000	\$4,598.77	\$401.23	101,793.76
November 1, 1980	5,000	4,580.72	419.28	101,374,48
May 1, 1981	5,000	4,561.85	438.15	100,936.33
November 1, 1981	5,000	4,542.13	457.87	100,478.46
May 1, 1982	5,000	4,521.54	478.46	100,000.00

# REQUIRED:

- (1) (a) What method is the amortization reflected by?
- (2) (b) What are the stated and market percentages of the annual rates of interest?
  - (c) If the issuing corporation's fiscal year ends December 31, give journal entries as indicated below:
- (3) i) November 1, 1980.
- (3) ii) December 31, 1980.
- (4) iii) On November 1, 1981 (after the interest payment entry), 40% of the outstanding bonds are retired for a price of \$43,000.

Select the best answer for each of the following unrelated items. Answer each of these 0.6 items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a) (i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

#### NOTE: 2 marks each

10

- (a) Computer Co. bought a patent for \$300,000 on January 2, 1979, at which time the patent had an estimated useful life of 10 years. On January 5, 1982, it was determined that this patent's useful life would expire at the end of 1985. How much should Computer Co. record as amortization expense for this patent for the year ending December 31, 1983?
  - i) \$70,000.ii) \$60,000.

  - iii) \$52,500.
  - iv) \$30,000.
- (b) Equipment costing \$8,000 with accumulated depreciation of \$6,700 that is sold for \$2,000 would result in a:
  - i) gain of \$2,000.
  - ii) gain of \$700.
  - iii) loss of \$700.
  - iv) loss of \$6,000.
- (c) Pyle Inc. purchased certain plant assets under a deferred payment contract on December 30, 1982. The agreement called for a \$30,000 down payment at the time of purchase and \$20,000 at the end of each of the next three years. The plant assets should be recorded on December 30, 1982 at:
  - i) \$30,000.
  - ii) \$90,000.
  - iii) \$90,000 plus interest costs over the next three years.
  - iv) \$30,000 plus the present value of the next three \$20,000 payments.
- (d) In January 1982 Scott Company purchased equipment for \$50,000, to be used in its manufacturing operations. The equipment was estimated to have a useful life of 5 years, with salvage value estimated at \$5,000. Scott considered various methods of depreciation and selected the sum-of-the-years-digits method of depreciation. On December 31, 1983, the related allowance for accumulated depreciation will have a balance:
  - i) \$5,000 less than under the double-declining balance method.
  - ii) \$1,800 less than under the double-declining balance method.
  - iii) \$7,000 greater than under the straight-line method.
  - iv) \$5,000 greater than under the double-declining balance method.
- (e) Which of the following would not be included in the capitalized cost of equipment purchases?
  - Installation fees
  - ii) Test run costs.
  - iii) Shipping costs.
  - iv) Cost of replacing a window broken during installation.

Q.7 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a) (i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

## NOTE: 2 marks each.

- (a) Terry Cloth, a partner in the Towel Partnership, has a 30% participation in partnership profits and losses. Cloth's capital account had a net decrease of \$60,000 during the calendar year 1983. During 1983, Cloth withdrew \$130,000 (charged against her capital account) and contributed property valued at \$25,000 to the partnership. Based on this information, what was the net income of the Towel Partnership for 1983?
  - i) \$150,000.
  - ii) \$233,333.
  - iii) \$350,000.
  - iv) \$550,000.
- (b) The division of partnership profits and losses on the basis of salaries, interest, and stated ratios is usually necessary because:
  - i) partners seldom contribute time, effort, and resources equally to a firm.
  - ii) it reflects the amount of time devoted to the partnership by the partners.
  - iii) it is simpler than following legal requirements.
  - iv) it prevents arguments among the partners.
- (c) Joe pays Sue \$100,000 for her \$50,000 interest in a partnership. On the partnership books:
  - i) Joe will have capital of \$50,000.
  - ii) Joe will have capital of \$100,000.
  - iii) Joe will receive a bonus.
  - iv) Joe will give up a bonus.
- (d) An accrued expense is an expense:
  - i) incurred but not paid.
  - ii) incurred and paid.
  - iii) paid but not incurred.
  - iv) not reasonably estimable.
- (e) Theoretically, a bond payable should be reported at the present value of the principal plus the present value of the interest discounted at the:
  - i) stated interest rate for both principal and interest.
  - ii) effective interest rate for both principal and interest.
  - iii) stated interest rate for principal and effective interest rate for interest.
  - iv) effective interest rate for principal and stated interest rate for interest.

- (f) In addition to a statement of financial position, earnings statement, retained earnings statement, and statement of changes in financial position, a complete set of financial statements must include:
  - i) adequate disclosure of accounting policies.
  - ii) an auditor's opinion.
  - iii) a ten-year summary of operations.
  - iv) historical "common size" financial summaries.
- (g) A principal objection to the straight-line method of depreciation is that it:
  - i) provides for the declining productivity of an aging asset.
  - ii) ignores variations in the rate of asset use.
  - iii) tends to result in a constant rate of return on a diminishing investment base.
  - iv) gives smaller periodic write-offs than decreasing charge methods.
- (h) Which of the following accounting concepts states that an accounting transaction should be supported by sufficient evidence to allow two or more qualified individuals to arrive at essentially similar measures and conclusions?
  - i) Matching.
  - ii) Objectivity.
  - iii) Periodicity.
  - iv) Stable monetary unit.
  - (i) What is the underlying concept that supports the immediate recognition of a loss?
    - i) Conservatism.
    - ii) Consistency.
    - iii) Judgment.
    - iv) Matching.
  - (j) A marketable equity security must have a ready market in order to be classified as current, and:
    - i) be available to management for use in short run operations.
    - ii) be traded on a recognized national exchange.
    - iii) have a current market value in excess of original cost.
    - iv) have been owned less than one year.

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**END OF EXAMINATION** 

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

Students handled most questions well, with many perfect or near-perfect scores. As usual, too many students did not answer the questions that were asked.

#### Specific

- Q.1 Full marks required a statement which was not only true but also sufficient to prove the "agree" or "disagree"; it was not necessary to treat the topic completely, and an example would usually suffice. Most students supported accrual adjusting entries (match non-cash revenues and expenses to the period), debits (true for assets, expenses, etc., but not for equities, etc.), and limited liability (separate entity; owners not liable...). Students had more difficulty arguing depreciation (does not affect cash except as tax shelter DR Expense/CR Contra-asset) and retained earnings vs. cash (e.g., some entries on the accrual basis affect one but not the other). Few recognized the contrasts with the cash basis.
- Q.2 (a) i) Most had trouble adding the debit balance to the desired credit balance to get the expense. Many reduced the allowance and receivables instead.
  - ii) Many did not note the key word "independent".
  - (b) The question was well done except for accruing interest when booking the note before interest was earned, and for finding three months' interest.
- Q.3 (a) Inventory computations were done well, except that many students omitted part (ii) cost of goods sold and some overlooked the opening balance.
  - (b) Performance on the effects of errors was mixed: most students did not recognize that completed inventory reversal means no ending balance sheet effect; many inverted over- and understatement.

- Q.4 (a) Owners' equity entries were well handled except for computations in share issue (April 2) and dividend declaration (June 20), charging dividends to retained earnings (June 20), and noting split (December 10).
  - (b) The average student prepared only a part of the Owners' Equity section. Most difficulties were in showing donated capital and in calculating retained earnings.
- Q.5 This was the worst-answered question. Students tended either to grasp bond amortization and do well, or not to grasp the concept and do poorly. Entries for the year-end accrual and partial retirement troubled those who did not grasp amortization.
- Q.6 No special problems.
- Q.7 Many students missed parts (a) partnership equity, (i) conservatism, and (j) current asset.

# CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks		Time	: 3 Hours
10	Q.1	<b>NOTE:</b> To receive <i>full</i> marks, there must be adequate justification of the taken.	position
	(2)	(a) Disagree.	
	(2)	(b) Disagree,	
	(2)	(c) Disagree.	
	(2)	(d) Disagree.	
	(2)	(e) Agree.	
15	Q.2 (3)	(a) i) Bad debt (doubtful accounts) expense Allowance for doubtful accounts  Allowance for doubtful accounts  \$600 \$1,320 - plug  \$720 \$2% \times 36,000\$  (a) ii) Bad debt expense Allowance for doubtful accounts \$2,040  Allowance for doubtful accounts \$2,040	CR \$1,320 CR \$2,040
	(3)	(b) i) Notes receivable Sales revenue (or accounts receivable)  DR \$2,000	<b>CR</b> \$2,000
	(3)	(b) ii) Purchases (supplies inventory, or accounts payable)\$2,000  Notes payable	CR \$2,000
	(3)	(b) iii) \$2,090.   (2,000 $\times$ .18 $\times$ 3/12) = 90 interest plus principal	

- 12 Q.3 (a) 200 + 50 80 + 100 + 100 150 = Ending Inventory
  - i) Ending inventory is 220 units.

  - (2) (c) Weighted average:

$$\frac{23,000}{450} = 51.11 \times 220 = \underbrace{\$11,244.44}_{}$$

(2) ii) Sold 230 units:

- (2) (b) i) The inventory error causes net income to be overstated by \$20,000 in 1983.
  The interest accrual error causes net income to be understated by \$500.
- (2) ii) The inventory error has no effect on the 1983 ending inventory balance.
  The interest accrual error causes receivables to be understated by \$500.

20	Q.4	1983 (a) January 1	Building	<b>DR</b> \$18,000	CR
	(2)		Land Contributed (capital) donations	2,000	\$20,000
	(2)	April 2	Cash Preferred stock	\$44,800	\$44,800
	(2)	June 20	Retained earnings Dividends payable - common Dividends payable - preferred  30,000 × .25 7,500	\$24,500	\$ 7,500 17,000
	(2)	June 30	(3,000 + 400) × 5 = 17,000  Dividends payable - common Dividends payable - preferred Cash	\$ 7,500 17,000	\$24,500
	(2)	September 5	Cash Subscriptions receivable Common stock subscribed	\$ 7,500 22,500	\$30,000
	(2)	October 31	Cash Subscriptions receivable	\$22,500	\$22,500
			Common stock subscribed Common stock	\$30,000	\$30,000
	(1)	December 10	No entry required Memorandum only		
	(2)	December 31	Income summary Retained earnings	\$75,000	\$75,000

(b) Olsen Company
Shareholders' Equity
As at December 31, 1983

					115 at December 5.	1, 1,00	
	(1)		Common sto 63,000 iss	\$ 540,000			
	(2)		Preferred sto 3,400 issu	371,800			
	(1)		Donated cap	ital			20,000
	(1)		Retained ear (120,000	- 7,500 - 1	7,000 + 75,000) reholder's equity		170,500 \$1,102,300
13	Q.5 (1)	(a)	Effective into	erest method.			
	(2)		10% compou	ınded semi-ar	nnually - stated nnually - market		
	(3)	(c)		expense on bonds pa	ayable	\$ 4,580.72 419.28	\$ 5,000.00
	(3)		ii) Interest of Premium		ayable	\$ 1,520.62 146.05	1,666.67
	(4)			ayable on bonds paredemption	ayable	\$40,000.00 191.38 2,808.62	\$43,000.00
10	Q.6	NO	TE: 2 marks	each.			
			iii) ii)	(c) iv) (d) i)	(e) iv)		
20	Q.7	NO	TE: 2 marks	each.			
		(a) (b) (c)	i)	(d) i) (e) ii) (f) i)	(g) ii) (h) ii) (i) i)	(j) i)	

**END OF SOLUTIONS** 

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#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION March, 1985

Marks		Time: 3 H	lour

- 10 Q.1 For each of the following statements, indicate whether you agree or disagree with the comment and *briefly justify* your answer.
  - (2) (a) A piece of machinery's net book value should always be equal to its fair market value.
  - (2) (b) In a period of rising prices (i.e., an inflationary period) for a firm whose inventory quantities are *not* decreasing, LIFO (last-in, first-out) gives a higher cost of goods sold amount than the FIFO (first-in, first-out) or weighted-average methods.
  - (2) (c) On the balance sheet, bonds payable are represented at the present value of their future cash outflows.
  - (2) (d) Common shareholders should receive cash dividends before preferred shareholders.
  - (2) (e) The direct write-off method is superior to the allowance method for accounting for bad debts because it provides a better matching of expenses.
- 15 Q.2 Nancy and Sue agreed to form a partnership and invested \$60,000 and \$30,000 respectively. Profits and losses are to be shared by allowing 10% interest on beginning capital investments with the remainder divided equally.

#### REQUIRED:

Give the journal entry to close the Income Summary Account and distribute the income in year one under each of the following *independent* assumptions:

- (5) (a) Net income for the year was \$12,000.
- (5) (b) Net income for the year was \$4,000.
- (5) (c) Net *loss* for the year was \$6,000.

NOTE: Show all work to arrive at income (loss) allocation.

Q.3 (a) The financial statements of Cassidy Company for the month of May include the following information:

		Total Dollars
Beginning Invent	ory (200 units)	\$10,000
Purchases		
May 5	400 units	22,000
May 19	500 units	26,500
Sold		
May 23	700 units	40,000
Ending Inventory (weighted-av	, erage method)	21,272

## **REQUIRED:**

- (6) i) Compute the Cost of Goods Sold and Gross Profit for the month of May.
- (6) ii) Assuming inventory is recorded under the periodic system, recalculate Ending Inventory under each of the following methods:
  - (a) first-in, first-out (FIFO);
  - (b) last-in, first-out (LIFO).
  - (b) In 1983 the Lockhart Corporation had a beginning inventory of \$25,000, net purchases of \$47,000, an ending inventory of \$28,000, sales of \$80,000, and cost of goods sold of \$44,000.

# REQUIRED:

- (3) i) If an error had been made in the physical count, and ending inventory should have been \$32,000, what should be the corrected gross profit for 1983?
- (3) ii) What is the effect of the error in (i) on gross profit in the following year (1984), assuming no correction was made in 1983?

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Q.4 On January 2, 1982 Lucy Company purchased a machine with a cash price of \$50,000.

Because of a cash shortage, Lucy paid \$10,000 down, and the remainder in two equal instalments of \$23,047.62 on December 31, 1982 and December 31, 1983, which includes interest on the unpaid balance of 10% per year. The machine had an estimated useful life of 5 years at which time its residual value would be \$5,000.

#### REQUIRED:

- (3) (a) Give the journal entry to record the purchase of the machine.
- (6) (b) Give the journal entries for the two instalment payments on December 31, 1982 and December 31, 1983.
- (2) (c) Give the adjusting journal entry for depreciation on December 31, 1982 assuming straight-line method.
- (6) (d) Give the adjusting journal entries for depreciation on December 31, 1982 and December 31, 1983 assuming the double declining balance method.
- Q.5 The Rail Corporation issued on July 1, 1983, \$15 million face value of its 6%, 20 year bonds payable with interest dates of April 1 and October 1. The company received cash of \$14,988,000 which included accrued interest since April 1 of \$225,000. The bonds mature 20 years from April 1, 1983.

#### REQUIRED:

- (3) (a) What was the amount of discount or premium on the bonds?
- (3) (b) What amount of cash will be paid to the bondholders on October 1, 1983?
- (3) (c) What will be the interest expense on October 1, 1983, assuming straight-line amortization?
- (1) (d) What was the effective interest rate on the bonds when they were issued? (Choose one of the following responses.)
  - i) 6%.
  - ii) Above 6%.
  - iii) Below 6%.
  - iv) Cannot be determined from the information given.

Q.6 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a) (i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

NOTE: 2 marks each.

(a) The following information was abstracted from the accounts of the Paddle Corporation at December 31, 1979:

Total income since incorporation	\$840,000
Total cash dividends paid	260,000
Stock subscriptions	90,000
Total value of stock dividends distributed	60,000

What should be the current balance of retained earnings?

- i) \$520,000.
- ii) \$580,000.
- iii) \$610,000.
- iv) \$670,000.
- (b) On June 30, 1980 Robert Corporation declared and issued a 10% common stock dividend. Prior to this dividend, Robert had 10,000 shares of \$5 par value common stock issued and outstanding. The market price of Robert's common stock on June 30 was \$12 per share. As a result of this stock dividend, by what amount should Robert's total shareholders' equity increase (decrease)?
  - i) \$ 0.
  - ii) \$ 5,000.
  - iii) \$ 7,000.
  - iv) (\$12,000.)
- (c) On June 30, 1984 the shareholders' equity section of Thompson Corporation was as follows:

 Common stock, par value \$25; authorized

 500,000 shares; issued and outstanding

 300,000 shares
 \$ 7,500,000

 Premium on common stock
 1,400,000

 Retained earnings
 1,890,000

 \$10,790,000

On July 1, 1984 the board of directors of Thompson Corporation declared a 5% stock dividend on common stock. The market price of Thompson's common stock on July 1, 1984 was \$30.

What is the amount of the charge to retained earnings as a result of the declaration and distribution of this stock dividend?

- i) \$375,000.
- ii) \$450,000.
- iii) \$465,000.
- iv) \$480,000.
- (d) James A. Lone, a sole proprietor, had a net increase in his owner's capital account of \$50,000 during the year 1983. Assuming that during the year he contributed assets to the business in the amount of \$30,000 and withdrew cash of \$14,000, what was his income for 1983?
  - i) \$66,000.
  - ii) \$64,000.
  - iii) \$50,000.
  - iv) \$34,000.
  - v) \$20,000.
- (e) On February 1, 1983 the T. Pot Corporation accepted a stock subscriptions contract for 2,000 shares of common stock at \$15 per share. The contract called for a 10% down payment with the remainder due in 90 days at which time the stock would be issued. What is the effect on total shareholders' equity on February 1, 1983 as a result of this contract?
  - i) \$30,000 increase.
  - ii) \$ 3,000 increase.
  - iii) \$27,000 increase.
  - iv) No effect on shareholders' equity until the shares are distributed.
- Q.7 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a) (i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

NOTE: 2 marks each.

- (a) Which of the following will not result in dissolution of a partnership?
  - i) Admission of a new partner.
  - ii) Withdrawal of a partner.
  - iii) Death of a partner.
  - iv) Sale of partnership assets.

- (b) Which of the following could be considered a disadvantage to the partnership form of business?
  - i) Mutual agency.
  - ii) Unlimited liability.
  - iii) Limited life.
  - iv) All of the above are disadvantages.
- (c) A 10 year bond that has a face value of \$1,000, a stated interest rate of 10%, an unamortized bond premium of \$50, and an effective interest rate of 9% will have, during the next semi-annual period, using the effective interest method, an amortization of premium of:
  - i) \$ 2.75.ii) \$ 5.50.

  - iii) \$ 7.50.
  - iv) \$15.00.
- (d) The sale of a depreciable asset resulting in a loss indicates that the proceeds from the sale were:
  - i) less than current market value.
  - ii) greater than cost.
  - iii) greater than book value.
  - iv) less than book value.
- (e) A plant site donated by a township to a manufacturer that plans to open a new factory should be recorded on the manufacturer's books at:
  - i) the nominal cost of taking title to it.
  - ii) its market value.
  - iii) one dollar (since the site cost nothing but should be included in the balance
  - iv) the value assigned to it by the company's directors.
  - v) none of the above.
- (f) On which of the following dates involving dividends does a liability arise?
  - i) Date of declaration.
  - ii) Date of record.
  - iii) Date of distribution.
  - iv) Balance sheet date.
- (g) How does failure to record accrued income distort the financial reports?
  - i) It understates revenue, net income, and current assets.
  - ii) It understates net income, capital, and current liabilities.
  - iii) It overstates revenue, capital, and current liabilities.
  - iv) It understates current assets and overstates capital.
  - v) None of the above.

(h) In preparing its bank reconciliation for the month of March 1982, Daily Company has available the following information:

Balance per bank statement, March 31, 1982	\$36,050
Deposit in transit, March 31, 1982	6,250
Outstanding cheques, March 31, 1982	5,750
Credit erroneously recorded by bank in	
Daily's account, March 31, 1982	250
Bank service charges for March	50

What should be the correct balance of cash at March 31, 1982?

- i) \$35,250.
- ii) \$36,250.
- iii) \$36,300.
- iv) \$36,550.
- (i) Based upon its past collection experience, McKinley Company provides for bad debt expense at the rate of 2% of credit sales. On January 1, 1981 the allowance for doubtful accounts balance was \$10,000. During 1981 McKinley wrote off \$18,000 of uncollectible receivables and recovered \$5,000 of bad debts written-off in prior years. If credit sales for 1981 totaled \$1,000,000, the allowance for doubtful accounts balance at December 31, 1981, should be:
  - i) \$12,000.
  - ii) \$17,000.
  - iii) \$20,000.
  - iv) \$30,000.
- (j) Spyder Corporation uses the allowance method for bad debts. During 1980, Spyder charged \$30,000 to bad debt expense, and wrote off \$25,200 of uncollectible accounts receivable. These transactions resulted in a net decrease to current assets of:
  - i) \$ 0.
  - ii) \$ 4,800.
  - iii) \$25,200.
  - iv) \$30,000.

100

**END OF EXAMINATION** 

# CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAHADA

# ACCOUNTING 101 EXAMINATION March, 1985

#### General

In general, students were well-prepared and answered confidently. However, there were some recurring problems. Most students had trouble with interest and bond calculations (questions 1(c), 4(b), 5, and 7(c)). Many also had difficulty with inventory and cost flows (questions 1(b) and 3).

## Specific

- Q.1 Short essays various topics. Mostly well done.
  - (a) Net book value. Well done, but often conveying a sense of the "rightness" of the historic cost model that will be hard to shake in 421.
  - (b) Many assumed periodic costing, which confused some as to ending inventory and cost of goods sold.
  - (c) Carrying value of bonds. Too many did not know what present value was.
  - (d) Preferred dividends. Mostly correct, but with the misconception that preferred shares cost more or are worth more than common.
  - (e) Matching bad debt expense. This was handled best by recalling that matching is "revenue and expense to period", rather than expense to revenue.
- Q.2 Partnership interests. Well done, many perfect scores. Problems were failing to read the question and, in reducing a credit balance, forgetting to debit it.
- Q.3 Inventory cost flows and gross margin. Many high scores. Some forgot the basic relations. Even many who did the computations could not apply the relations to the reversal ((b) ii).
- Q.4 Fixed assets, interest.
  - (a) Record purchase for cash and note. Some credited accounts payable. Too many booked unaccrued interest, in many forms.
  - (b) Principal and interest. Most miscalculated interest expense (rate time balance) and the debit to principal (plug) by trying to take straight line amortization. many neglected expense entirely.

Continued...

- Q.4 (c) Straight line depreciation. No problems.
  - (d) Accelerated depreciation. Too many reduced the depreciable balance by salvage.
- Q.5 This bond calculation question had some subtle points, but even the easy ones confused too many students. The easier parts were finding the discount (a) and periodic cash payment (b), and noting that sale at a discount means that the effective interest rate exceeds the stated rate (d). While not required, a safe approach is to find the journal entries. Note that the discount is amortized over the 39½ periods (237 months) the firm has the bonds outstanding, not the nominal 40 periods, and that the first payment occurs after three months, not a full period.
  - (a) Cash (given) (\$000) 14,988 Discount (plug) 237

Bonds outstanding 15,000 Accrued interest payable (given) 225

- (c) Interest expense (plug) 228
  Accrued interest payable (given) 225
- (b) Cash (.09)(6/12)(15,000) 450 Discount (237)(1/237 months)(3 mo.) 3
- Q.6 & 7 Multiple choice: Owner's equity and various other topics.

  More low scores than usual, but the only pattern seemed to be missing the bond premium amortization in 7 (c).
- Q.7 (c) Consider the journal entry:

Interest expense (.09)(6/12)(1,000 + 50) 47.25 Premium (plug) 2.75 (i)

Cash (.10)(6/12)(1,000) 50

# CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks					Time: 3 Hours
10	Q.1	NOTE: To receive full marks, the taken.	re must be adequat	e justificatio	on of the position
	(2)	(a) Disagree.			,
	(2)	(b) Agree.			~
	(2)	(c) Disagree unless qualified.			
	(2)	(d) Disagree.			
	(2)	(e) Disagree.			
15	Q.2 (5)	(a)	Nancy	Sue	Income Left to Distribute
		Net Income			\$12,000
		Interest 10% of 60,000 10% of 30,000	6,000	3,000	(6,000) (3,000) 3,000
		Remainder 50/50 Totals	1,500 7,500	1,500 4,500	(3,000)
				DR	CR
		Income Summary Nancy, Capital Sue, Capital		\$12,000	\$7,500 4,500

(5)	(b)	Nancy	Sue	Income Left to Distribute
	Net Income			\$ 4,000
	Interest 10% of 60,000 10% of 30,000	6,000	3,000	(6,000) (3,000)
	Remainder 50/50 Totals	(2,500) 3,500	(2,500) 500	(5,000) <u>5,000</u> 0
			DR	CR
	Income Summary Nancy, Capital Sue, Capital		\$4,000	\$3,500 500
(5)				
(5)	(c)	Nancy	Sue	Income Left to Distribute
(5)	(c) Net Loss	Nancy	Sue	
(3)	Net Loss Interest 10% of 60,000 10% of 30,000	Nancy 6,000	Sue 3,000	(6,000) (6,000) (3,000)
(3)	Net Loss Interest 10% of 60,000	6,000	3,000	(6,000) (6,000) (3,000) (15,000)
(3)	Net Loss Interest 10% of 60,000 10% of 30,000 Remainder			(6,000) (6,000) (3,000)
(3)	Net Loss  Interest     10% of 60,000     10% of 30,000  Remainder     50/50	6,000 (7,500)	3,000 (7,500)	(6,000) (6,000) (3,000) (15,000)
(3)	Net Loss  Interest     10% of 60,000     10% of 30,000  Remainder     50/50	6,000 (7,500)	3,000 (7,500) (4,500)	(6,000) (6,000) (3,000) (15,000) 15,000 0

0.3	(2)					
(6)	(a) i)	Sales			\$40,00	00
		Cost of goods sold: Beginning inventory Purchases Goods available		+ 48.	,500	
		Less: Ending inventory		- <u>\$21</u>	,272	
		Less: Cost of goods sol Gross profit	d		37,22 \$ 2,72	-
(6)	ii)	Ending inventory = 400 u	nits			
		<ul><li>(a) FIFO: May 19 units:</li><li>(b) LIFO: Beginning inventory May 5 units:</li></ul>	units: 2	00 @ \$50 = \$10,00 00 @ \$55 = <u>\$11,0</u>	00	
(3)	(b)	Beginning inventory	25 000	Sales	80 000	
(5)	-/	Purchases	47,000	Cost of goods	sold <u>40,000</u>	corrected
		Ending inventory Cost of goods sold	32,000			gross profit
		(6) i) (6) (6)	Cost of goods sold: Beginning inventory Purchases Goods available Less: Ending inventory Less: Cost of goods sol Gross profit  (6) ii) Ending inventory = 400 u  (a) FIFO: May 19 units: (b) LIFO: Beginning inventory May 5 units:  (b)  (3) i) Beginning inventory Purchases Goods available Ending inventory	Cost of goods sold: Beginning inventory Purchases Goods available Less: Ending inventory Less: Cost of goods sold Gross profit  (6) ii) Ending inventory = 400 units  (a) FIFO: May 19 units: 4 (b) LIFO: Beginning inventory units: 2 May 5 units: 2  (b) Beginning inventory units: 2 May 5 units: 2  Coods available Finding inventory Purchases Goods available Ending inventory 32,000	Cost of goods sold:	(6) i) Sales \$40.00  Cost of goods sold: Beginning inventory \$110,000 Purchases +48,500 Goods available \$558,500  Less: Ending inventory -\$21,272  Less: Cost of goods sold Gross profit \$37,22  \$2,77  (6) ii) Ending inventory = 400 units  (a) FIFO: May 19 units: 400 @ \$53 = \$21,200  (b) LIFO: Beginning inventory units: 200 @ \$50 = \$10,000 May 5 units: 200 @ \$55 = \$11,000 \$21,000  (5)  (6) Beginning inventory units: 200 @ \$50 = \$10,000 May 5 units: 200 @ \$50 = \$10,000 Cost of goods sold 40,000  Goods available 72,000 Gross profit 40,000 Ending inventory 32,000

ii) Gross profit will be overstated by \$4,000 in 1984.

25

(3)

17	Q.4 (3)	(a)	DR	CR
		Machinery Cash Note payable	\$50,000	\$10,000 40,000
	(6)	(b)	DR	CR
		December 31, 1982 Note payable Interest expense Cash	\$19,047.62 4,000.00*	\$23,047.62
		*40,000 × 10% = 4,000		
		December 31, 1983 Note payable Interest expense Cash	\$20,952.38 2,095.24*	\$23,047.62
		*(40,000 - 19,047.62) × 10% = 2,095.24		
	(2)	(c) Depreciation expense Accumulated depreciation	\$ 9,000	\$ 9,000
		$(50,000 - 5,000) \div 5 = 9,000$		
	(6) (	(d) December 31, 1982 Depreciation expense Accumulated depreciation	\$20,000	\$20,000
		50,000 × .4 = 20,000		
		December 31, 1983 Depreciation expense Accumulated depreciation	\$12,000	\$12,000
		$(50,000 - 20,000) \times .4 = 12,000$		

10

Q.5

(3) (a) Discount:

\$15,000,000 - (14,988,000 - 225,000) = \$237,000

(3) (b) Cash to bondholders:

 $$15,000,000 = (\frac{1}{2} \times 6\%) = $450,000$ 

(c) Semi-annual interest: (3)

Consider July 1, 1983 (issue date)

\$14,988,000 Cash Discount 237,000

> \$15,000,000 Bonds payable 225,000 Accrued interest payable

And October 1, 1983 (First 3 month period)

\$228,000\* Interest expense Accrued interest payable 225,000

> \$450,000 Cash 3,000 Discount

- (1)(d) ii) above 6%.
- NOTE: 2 marks each. 10 Q.6
  - (a) i) (c) ii)
- (e) i), iv)
- (b) i) (d) iv)
- NOTE: 2 marks each. 20 0.7
  - (a) iv)
- (d) iv) (e) ii)
- (g) i)
- (j) iv)

- (b) iv)
- (h) iii)

- (c) i)
- (f) i)
- (i) ii)

100

**END OF SOLUTIONS** 

<sup>\*</sup> The figure required is equal to the period's amortization + cash = \$3,000 + \$225,000.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION June, 1985

Marks Time: 3 Hours

- 10 Q.1 For each of the following statements, indicate whether you agree or disagree with the comment and *briefly justify* your answer.
  - (2) (a) In calculating depreciation expense, the double declining balance method ignores salvage value.
  - (2) (b) Short-term marketable securities are always shown on the balance sheet at current fair market value.
  - (2) (c) The effect of amortizing the premium on bonds payable is to increase the interest expense over the (cash) amount actually paid as interest.
  - (2) (d) At the end of an accounting period, a well-managed company will always have an increase in cash at least equal to the net income for the period.
  - (2) (e) All revenue and expense accounts must be closed at the end of the fiscal period before net income can be determined.
- 17 Q.2 The pre-closing trial balance for the Yosimite Company is presented below:

# The Yosimite Company Pre-closing Trial Balance As at December 31, 1984

Cash	\$ 2,500
Accounts Receivable (net)	4,000
Merchandise Inventory on January 1, 1984	16,000
Office Fixtures	2,500
Accumulated Depreciation on fixtures	750
Accounts Payable	1,000
Notes Payable	2,000
Capital Stock	11,000
Retained Earnings	1,700
Sales	19,000
Purchases (gross)	8,000
Purchase Returns	350
Transportation-in	100
Salaries Expense	1,850
Depreciation Expense on fixtures	375
Interest Expense	125
Interest Revenue	
Dividend Revenue	400
Income Tax Expense	250
Theolie Tax Expelise	1,000

# **REQUIRED:**

- (5) (a) i) Compute the Cost of Goods Sold Expense for the fiscal year 1984. Yosimite Company uses the periodic inventory method. Merchandise inventory as of December 31, 1984, is \$13,750.
- (3) ii) Prepare the closing entry for this account relevant to Cost of Goods Sold.
- (9) (b) Assume for this part of the question only that Cost of Goods Sold Expense for 1984 is \$12,000. Using all other relevant data from the pre-closing trial balance, prepare an income statement for the year ended December 31, 1984.
- 13 Q.3 During the first few days of 1983, the Sonata Company began business and entered into the following transactions:
  - Paid \$5,000 in attorney's fees and other costs related to the organization of the company.
  - ii) Purchased a parcel of land with an old building on it for \$92,000. The building was torn down at a net cash cost of \$10,000.
  - iii) Erected a prefabricated, modular shell building on the site in three days at a cost of \$210,000. The building had an estimated useful life of 15 years and an estimated salvage value of \$15,000.
  - iv) Purchased an existing patent on a special production process for \$42,000. The patent's legal protection and useful life have 12 years remaining.
  - v) Purchased and installed some used equipment to enable the company to begin operations. The purchase price plus installation costs totaled \$66,500. The company expects to replace the equipment after seven years, at which time its residual value is estimated to be \$4,000. Paid \$500 freight on the equipment purchased.

#### REQUIRED:

- (5) (a) Prepare general journal entries to record the above transactions. Assume cash is used for all purchases.
- (8) (b) Prepare the general journal entries needed at December 31, 1983, to record proper amounts of depreciation and amortization expense for the year. Sum-of-the-years' digits method of depreciation is used for the equipment and straight-line depreciation is used for the building. Organization costs are amortized on a straight-line basis over five years. Patent costs are to be amortized on a straight-line basis.

- 15 Q.4 NOTE: Parts (a), (b) and (c) of this question each represent an independent set of data.
  - (a) The outstanding capital stock of the McMurphy Company consists of 1,000 shares of \$100 par value, 6% preferred stock, and 4,000 shares of \$50 par value common stock. The company has \$80,000 in retained earnings, \$51,000 of which is to be paid out in dividends, and the preferred dividends were not paid during the two years preceding the current year.

# REQUIRED:

State how much each class of stock should receive under each of the following conditions:

- (2) i) The preferred stock is non-cumulative and non-participating.
- (3) ii) The preferred stock is cumulative and non-participating.
  - (b) Baker Company is authorized to issue 500,000 shares of no par value common stock. On November 30, 1982, 50,000 shares were subscribed at \$12 per share. A 30% down payment was made on the subscribed stock. On January 30, 1983, the balance due was collected and the stock was issued.

### REQUIRED:

- (5) Give all necessary journal entries for the above transactions.
  - (c) The shareholders' equity section of the Dulin Company has the following account balances on December 31, 1980.

Common stock, no par, 500,000 shares issued and outstanding Retained earnings

\$7,000,000 9,000,000

Shares of Dulin Company are currently selling for \$40.

#### REQUIRED:

Prepare journal entries, if necessary, for each of the following independent cases:

- (2) i) A cash dividend of \$.25 per share is declared and then paid.
- (2) ii) A stock dividend of 10% is declared and issued.
- (1) iii) A 4-to-1 stock split is declared and issued.

15 Q.5 On January 1, 1983, Horace Corporation issued \$5,000,000 of 12% 30-year bonds. The bonds were sold for \$6,000,000, an amount which you should assume is equivalent to an 8% effective rate of interest compounded semi-annually. Interest is payable on the bonds each June 30 and December 31.

On January 1, 1984 Horace purchased on the open market 1/5 of the bonds at a price of 101 (i.e., \$1,010 for each \$1,000 face-value bond). The bonds were formally retired on that date.

## REQUIRED:

- (3) (a) Give the journal entry to record the issuance of the bonds on January 1, 1983.
- (6) (b) Calculate the total amount of interest expense Horace should recognize in the year ended December 31, 1983. Assume that Horace uses the effective interest method (not the straight-line method) to amortize bond discount or premium. Show supporting computations in good form.
- (6) (c) Give the journal entry to record the purchase of the bonds on January 1, 1984. Show supporting computations in good form.
- Q.6 Select the best answer for each of the following items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

**NOTE:** The information in part (a) is also applicable to part (b). Parts(c), (d) and (e) are unrelated situations. Two marks will be awarded for each correct answer.

(a) The information below was available from the inventory records of the Zander Company for January, 1983:

	Units	Unit Cost	Total Cost
Balance at January 1, 1983	2,000	\$ 9.775	\$19,550
Purchases January 6, 1983 January 26, 1983	1,500 3,400	\$10.300 \$10.750	\$15,450 \$36,550
Sales January 7, 1983 January 31, 1983	1,800 <u>3,200</u>		
Balance at January 31, 1983	1,900		

- (a) Assume that Zander maintains periodic inventory records. What should be the value of inventory at January 31, 1983, using the weighted-average method, rounded to the nearest dollar?
  - \$19,523.
  - ii) \$19,702.
  - iii) \$19.905.
  - iv) \$19,998.
- (b) Assume instead that Zander maintains perpetual inventory records. What should be the value of inventory at January 31, 1983, using the first-in, first-out method?
  - i) \$18,573.
  - ii) \$18,768.
  - iii) \$19,750.
  - iv) \$20,425.
- (c) Based upon its past collection experience, Poppy Company calculates for bad debt expense at the rate of 2% of credit sales. On January 1, 1981, the allowance for doubtful accounts balance was a credit of \$10,000. During 1981, Poppy wrote off \$18,000 of uncollectible receivables. If credit sales for 1981 totaled \$1,000,000, the allowance for doubtful accounts balance at December 31, 1981, should be:
  - i) \$ 2,000 debit.
  - ii) \$12,000 credit
  - iii) \$20,000 credit.
  - iv) \$30,000 credit.
- (d) At the end of 1981, Tripod Company overstated its ending inventory by \$6,000. Assuming the error has not been corrected, how will the 1982 net income figure be affected?
  - No effect
  - ii) A \$6,000 understatement.
  - iii) A \$6,000 overstatement.
  - iv) A \$12,000 overstatement.
- (e) In preparing for its budget for October, 1983, Caruso Company has the following accounts receivable information available:

Accounts Receivable at September 30, 1983	\$350,000
Estimated credit sales for October	400,000
Estimated collections in October for	
credit sales in October and previous months	320,000
Estimated write-offs in October for	220,000
uncollectible credit sales	16,000
Estimated provision for doubtful accounts	10,000
for credit sales in October	12,000

What is the projected balance of accounts receivable at October 31, 1983?

- \$402,000.
- ii) \$414,000.
- iii) \$426,000.
- iv) \$430,000.

Q.7 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

### NOTE: 2 marks each.

20

(a) The following condensed balance sheet is presented for the partnership of Apple and Turnover who share profits and losses in the ratio of 6:4 respectively:

Cash	\$ 80,000
Other Assets	280,000
Total	\$360,000
Liabilities	\$140,000
Apple, Capital	100,000
Turnover, Capital	120,000
Total	\$360,000

The partners agreed to liquidate the partnership after selling the "Other Assets". If the "Other Assets" are sold for \$160,000, how much cash should Apple receive upon liquidation?

- i) \$ 28,000.
- ii) \$ 48,000.
- iii) \$ 96,000.
- iv) \$100,000.
- v) \$144,000.
- (b) The ability of a partner to enter into contract on behalf of all partners is called the:
  - i) voluntary association.
  - ii) mutual agency.
  - iii) partnership agreement.
  - iv) unlimited liability.

- (c) Partners C and K share profits and losses equally after each has been credited in all circumstances with annual salary allowances of \$15,000 and \$12,000, respectively. Under this arrangement, C will benefit by \$3,000 more than K in which of the following circumstances?
  - i) Only if the partnership has earnings of \$27,000 or more for the year.
  - ii) Only if the partnership does not incur a loss for the year.
  - iii) In all earnings or loss situations.
  - iv) Only if the partnership has earnings of at least \$3,000 for the year.
- (d) At December 31, 1980, Nantucket Corporation had total assets of \$200,000 and total liabilities of \$50,000. During 1980, Nantucket Corporation earned net income of \$40,000, paid cash dividends of \$20,000, and sold additional stock for \$30,000. There were no other capital transactions during 1980.

Given this information, the total assets and liabilities, respectively, at December 31, 1979 could have been:

Assets	Liabilities
i) \$130,000	\$30,000
ii) \$150,000	\$30,000
iii) \$150,000	\$20,000
iv) \$150,000	\$40,000

(e) Howard Company sublet a portion of its warehouse for five years at an annual rental of \$18,000, beginning on May 1, 1980. The tenant paid one year's rent in advance, which Howard recorded as a credit to unearned rental income. The adjustment on December 31, 1980, should be:

		DR	CR
i)	No Entry		
ii)	Unearned rental income Rental income	\$ 6,000	\$ 6,000
iii)	Rental income Unearned rental income	\$ 6,000	\$ 6,000
iv)	Unearned rental income Rental income	\$12,000	\$12,000

- (f) What accounting concept or principle justifies the usage of accruals and deferrals?
  - i) Matching,
  - ii) Materiality.
  - iii) Full disclosure.
  - iv) Stable monetary unit.

- (g) During the lifetime of an entity, accountants produce financial statements at arbitrary points in time in accordance with which basic accounting concept?
  - i) Objectivity.
  - ii) Periodicity.
  - iii) Conservatism.
  - iv) Matching.
- (h) A purchased patent has a remaining legal life of 15 years. It should be:
  - i) expensed in the year of acquisition.
  - ii) amortized over 15 years regardless of its useful life.
  - iii) amortized over its useful life if less than 15 years.
  - iv) amortized over 40 years.
- (i) In a periodic inventory system the beginning inventory is the:
  - i) net purchases minus the cost of goods sold.
  - ii) net purchases minus the ending inventory.
  - iii) total goods available for sale minus the net purchases.
  - iv) total goods available for sale minus the cost of goods sold.
- (j) When a specific customer's accounts receivable is written-off as uncollectible, what will be the effect on net income under the allowance and direct write-off methods of recognizing bad debt expense?

	Allowance	Direct Write-off
i)	None	Decreased
ii)	Decreased	None
iii)	Decreased	Decreased
iv)	None	None

<u> 100</u>

**END OF EXAMINATION** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ACCOUNTING 101 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

Once again, most students did well, especially with calculations. Interest, bonds and owners' equities, both computations and entries, remain troublesome for most students. These need work, as does "reading the question".

### Specific

- Q.1 This was five short essays, which could be answered easily by reference to bookkeeping procedures or to principles. Most students did so for part (a), though with some confusion as to what happens to depreciation after the first year, for (d) and for (e). In part (b), many students agreed that marketable securities "should" be carried at current market. In part (c), nearly half agreed that amortizing bond premium made interest expense more than cash paid; many said it did not, because its only effect is to spread the premium over the years. Part (c) was handled the least well of the five parts.
- Q.2 Most students computed the cost of goods sold and net income. A few treated freight-in as a period expense. Most supplied an adjusting entry rather than the closing entry. Almost all students had trouble showing both gross margin and non-operating revenues on the same statement and some included balance sheet accounts in the income statement.
- Q.3 Overall, this was quite well done. Almost all calculated depreciation and amortization correctly. Students showed some terminological looseness, especially pertaining to cost-or-expense and intangibles, and some uncertainty about which costs to capitalize, especially site preparation and freight-in.
- Q.4 Most could calculate the preferred dividend correctly, but could go no further on this question. See general comment.
- Q.5 Most students could record bond issuance correctly, but they had a great deal of difficulty calculating interest expense and premium amortization (b) by the effective-interest method. The effective-interest method requires more study. Allowing for follow-through errors (as we always do), very few could calculate the gain or loss on requirement (c). Parts (b) and (c) were not handled well.
- Q.6 In general, well handled.
- Q.7 No particular problems. The partnership calculations (a) and (c) caused the most trouble.

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## ACCOUNTING 101 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks				Time: 3 Hours
10	Q.1	NOTE: To receive full marks, there must be adequated taken.	ate justification	on of the position
	(2)	(a) Agree or disagree depending upon justification.		
	(2)	(b) Disagree.		
	(2)	(c) Disagree.		
	(2)	(d) Disagree.		
	(2)	(e) Agree or disagree depending upon justification.		
17	Q.2 (5)	(a) i)  16,000 8,000 Purchases (350) Purchase returns Transportation-in 23,750 Cost of goods available Ending inventory 10,000 Cost of goods sold		
		NOTE: Journal entry not required:	DR	CR
		Cost of goods sold expense Purchase returns	\$23,750 350	
		Inventory (beginning inventory) Transportation-in Purchases		\$16,000 100 8,000
		Inventory (ending inventory)  Cost of goods sold expense	\$13,750	\$13,750
	(3)	ii) Income summary Cost of goods sold expense	\$10,000	\$10,000

(9)	)	(	b	)

## The Yosimite Company Income Statement For the year ended December 31, 1984

		For the year ended	December 31, 19	84	
		Sales Cost of goods sold expense Gross profit		\$19,000 _(12,000)	\$7,000
		Add other revenues: Interest revenue Dividend revenue		400 250	<u>650</u> 7,650
		Deduct expenses: Salaries expense Depreciation expense Interest expense Income tax expense Net income		(1,850) (375) (125) (1,000)	(3,350) \$4,300
13	Q.3		DR	CR	
	(5)	(a) i) Organization costs Cash	\$ 5,000	\$ 5,000	
		ii) Land Cash	\$102,000*	\$102,000	
		*(\$92,000 + \$10,000 for building torn	n down)		
		iii) Building Cash	\$210,000	\$210,000	
		iv) Patent Cash	\$ 42,000	\$ 42,000	
		v) Equipment . Cash	\$ 67,000*	\$ 67,000	
		*(\$66,500 purchase price plus \$500 f	reight)		
	(8)	(b) Organization Costs:			
			DR	CR	
		Amortization of organization costs Organization costs	\$ 1,000	\$ 1,000	
		$(\$5,000 \div 5 \text{ years} = \$1,000)$			

Building:	DR	CR
Depreciation expense Accumulated depreciation	\$13,000	\$13,000
(\$210,000 - 15,000 salvage value) ÷ 15 yea	rs = \$13,000	
Equipment:		
Depreciation expense Accumulated depreciation	\$15,750	\$15,750
(\$67,000 - 4,000 = \$63,000)		
( 63,000 × 7/28 = \$15,750)		
Patent:		
Amortization of patent Patent	\$ 3,500*	\$ 3,500
*(\$42,000 ÷ 12)		

15 Q.4

(a) Preferred stock legal capital:

1,000 shares × \$100 = \$100,000

Yearly dividend requirement:

\$100,000 × .06 \$ 6,000

Dividends in arrears:

\$6,000 = 2 years = \$12,000

(2) i) Non-cumulative:

Preferred = \$ 6,000 Common (\$51,000 - \$6,000) = \$45,000

(3) ii) Cumulative:

Preferred = Dividends in arrears
Preferred = Current dividends

\$12,000
6,000
\$18,000

Common = \$51,000 - \$18,000 = \$33,000

		Common stock subscribed		\$600,000**
		* 600,000 × .3 = \$180,000 ** 50,000 × \$12 = \$600,000		
	Jai	nuary 30, 1983		
		Cash Subscriptions receivable	\$420,000	\$420,000
		Common stock subscribed Common stock	\$600,000	\$600,000
			DR	CR
(2)	(c) i)	Retained earnings Dividends payable	\$ 125,000	\$ 125,000
		Dividends payable Cash	\$ 125,000	\$ 125,000
		500,000 × .25 = 125,000		
(2)	ii)	Retained earnings Stock dividend distributable	\$2,000,000	\$2,000,000
		Stock dividend distributable Common stock	\$2,000,000	\$2,000,000
		500,000 × 10% = 50,000 × \$40 = 2,000,0	000	
(1)	iii)	No journal entry required; however, outstanding is now 2,000,000.	the number	of shares issued and

DR

\$180,000 420,000 CR

(5)

(b) November 30, 1982

Cash\*
Subscriptions receivable

15 Q.5 DR CR

(3) (a) Cash

> Bonds payable Premium on bonds payable

\$6,000,000 \$5,000,000 1,000,000

(b) Interest expense for June 30, 1983: (6)

$$6,000,000 \times .04 = $240,000$$

Cash paid to bondholders

$$5,000,000 \times .06 = $300,000$$

Amortization of premium = 60,000

Interest expense for December 31, 1983

$$(6,000,000) - (60,000) \times .04 = \underline{$237,600}$$

\*Total interest expense for 1983:

$$240,000 + 237,600 = $477,600$$

(6) (c) Amortization of premium on December 31, 1983:

$$300,000 - 237,600 = $62,400$$

January 1, 1984

Carrying value: 5,877,600 Bond premium: 877,600

1/5 retired

Bonds payable Premium

1,000,000 175,520

Gain Cash

165,520 1,010,000

(j) i)

NOTE: 2 marks each. 10 Q.6

- (a) ii)
- (c) ii)
- (e) ii)
- (b) iv)
- (d) ii)

Q.7 NOTE: 2 marks each. 20

- (a) i)
- (d) i)
- (g) ii)

- (b) ii)
- (e) iv)
- (h) iii)

- (c) iii)
- (f) i)
- (i) iii)

100

END OF SOLUTIONS

### CERTIFIED CHEMAL ACCOUNTANTS' ASSOCIATION OF CANADA

## ECONOMICS 104 EXAMINATION December, 1984

Marks Time: 3 Hours

### PART I:

- 20 Q.1 Briefly define and/or describe five of the following six pairs of concepts:
  - (4) (a) price and marginal revenue
  - (4) (b) gross national product and marginal physical product
  - (4) (c) short run and long run
  - (4) (d) transfer payment and wage payment
  - (4) (e) quantity supplied and supply
  - (4) (f) investment and consumption

## PART II: Answer only FOUR questions in this part.

**Briefly** explain whether the following statements are economically sound and if not, why not.

- 10 Q.2 "In order to minimize factor costs, an entrepreneur should continue to add more of each resource until its marginal physical product equals zero."
- 10 Q.3 "The larger the marginal propensity to consume is, the more effective fiscal policy is likely to be."
- 10 Q.4 "The major oil companies are obviously very competitive because when one starts a new advertising campaign or contest, all the others respond with their own new sales promotional activities."
- 10 Q.5 "If the price of X is twice the price of Y, a consumer who wishes to maximize utility will purchase twice as much Y as  $X_{\bullet}$ "
- 10 Q.6 "Excise taxes on commodities like tobacco and liquor are likely to be regressive taxes even though they are a proportional amount, e.g., 10%, 15%, etc., of the value of the commodity."

## INIT III: Answer BOTH questions in this part.

- 10 Q.7 Economists view both inflation and unemployment as being undesirable situations in the economy.
  - (3) (a) Why does unemployment have bad economic effects? Be specific.
  - (3) (b) Why does inflation have bad economic effects? Be specific.
  - (4) (c) If you were advising a government that had to choose between some unemployment and some inflation, what choice would you suggest that the government make? Explain.
- 10 Q.8 Many observers feel that the level of economic welfare in Canada could be improved by increasing the degree of competition in the economy.
  - (3) (a) What do economists mean by "competition"? Be specific.
  - (4) (b) Would breaking up large oligopolistic firms necessarily improve economic welfare?
  - (3) (c) Briefly, what would you suggest that the government do to improve the competitiveness in the economy?

## PART IV: Answer BOTH questions in this part.

- 10 Q.9 Assume that a hypothetical country is earning \$100 billion in foreign exchange through international transactions while the quantity demanded of foreign exchange is \$150 billion.
  - (2) (a) Is the country using a flexible exchange rate? Explain.
  - (2) (b) If not, is its currency over- or under-valued? Why?
  - (3) (c) Name three policies the government might use to correct the situation you noted in part (b) assuming it does not wish to use induced or accommodating transactions.
  - (3) (d) Which of the policies noted in part (c) would you recommend to the country's government? Why?

- Q.10 Assume you were given the following information pertaining 10 to the present output of the firm:

  - i) price is \$15, while marginal revenue is \$10; andii) long-run average cost is \$10, while long-run marginal cost is \$8.

Under these conditions:

- (3) (a) What type of market structure is the firm in? Explain why.
- (3) (b) Is the firm maximizing profits? Explain why.
- (4)(c) If not, what would you recommend that the firm do? Explain why.

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END OF EXAMINATION

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMADIA

## December, 1984 EXAMINER'S

#### General.

The overall results were somewhat disappointing, when compared to other examinations in which most of those writing were supplementalists. However, no general weaknesses were apparent, and there did not seem to be any problem of question interpretation.

## Specific

- Q.1 (a) This part was well answered by most students.
  - (b) Some students did not note that GNP is derived from the flow of factor incomes.
  - (c) This part was very well answered by virtually all who selected it.
  - (d) Well answered.
  - (e) Some students did not relate quantity supplied to price.
  - (f) Generally well answered.
- Q.2 Adequately answered by most. A significant number of students did not mention the relevance of resource prices to cost minimization.
- Q.3 This question was not particularly well answered, most students omitting to relate the marginal propensity to consume to the size of the multiplier.
- Q.4 Well answered by most. Less prepared students did not recognize that the situation portrayed was not competitive.
- Q.5 This question was not especially well handled. Many students did not explain how price relates to utility maximization.
- Q.6 Most students answered quite well, although a significant number did not indicate that incidence is determined by the percentage of income ultimately taken by the tax.
- Q.7 (a) Only a few answers noted that the ultimate costs of unemployment are the foregone goods and services that could have been produced.
  - (b) Few responses noted that inflation has an undesirable effect on the distribution of income.

Continued...

- (c) Generally, most of the suggestions were reasonable.
- Q.8 (a) This part was generally well answered, especially the notion of "price-takers".
  - (b) Generally, most students noted that economics of scale might be lost, but few noted the likely gains from breaking up large firms.
  - (c) Most suggestions to improve competition were reasonable.
- Q.9 (a) This part was well answered. It was generally noted that a flexible rate would produce a Balance of Payments equilibrium.
  - (b) Many students incorrectly asserted that a deficit implies that the country's currency is undervalued rather than overvalued.
  - (c) Few students were able to list the required three policies, though the Lesson Notes and text noted four alternatives.
  - (d) Most of the suggested policies were reasonable.
- $Q \cdot 10$  (a) Most students correctly noted that the market structure was not competitive.
  - (b) Although most students correctly noted that the firm was not maximizing profits, they could not always explain why, i.e., marginal revenue equal to marginal cost.
  - (c) Even when it was asserted that the firm was not maximizing profits, only a minority of students suggested correctly that output should be increased.

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ECONOMICS 104 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

## Marks

Time: 3 Hours

#### PART I:

- 20 0.1
  - (4) (a) Price is the amount that a good or service sells for in the market. Marginal revenue is the amount by which total revenue is changed when an additional unit is sold.
  - (4) (b) GNP is the total value of currently produced goods and services in the economy valued at current prices, obtained by summing all the factor payments made, i.e., the flowof-income approach. MPP is the change in total product when one additional unit of a resource is used in production.
  - (4) (c) The short run is a period of time within which at least one resource is fixed. The long run is a period of time wherein all resources are variable.
  - (4) (d) A transfer payment is a payment made to individuals when no service is currently rendered. A wage payment is a payment to labor for current productive services.
  - (4) (e) The quantity supplied is the amount willingly supplied at a specific price. Supply indicates the various amounts willingly supplied at all alternative prices.
  - (4) (f) Investment occurs when the economy's real, physical capital stock is increased, e.g., machinery, buildings, etc. Consumption is the using up of goods and services.

NOTE: Markers should be warned that a variation in wording could be acceptable providing the situation is correctly described. For example, marginal revenue is described in the solution as "...the amount by which total revenue is changed when an additional unit is sold." The Lesson Notes (page 104-8-3) state marginal revenue is "...the change in total revenue divided by the change in output sold." The text (page 354) states marginal revenue is "...the change in total revenue due to the sale of an additional unit of output." Variations such as these could be illustrated for the other items.

#### PART II:

- 10 Q.2 The statement is incorrect as it ignores the constraint imposed by costs. The least-cost combination rule states that resources should be combined such that the marginal physical product obtained from the last dollar spent on each resource should be the same, e.g., MPP divided by price should be the same for each resource.
- 10 Q.3 This is correct. Fiscal policy works through effecting a change in spending which in turn works through the multiplier to produce the ultimate change desired in income, i.e., GNP/GNE. The larger the marginal propensity to consume, the larger the multiplier; therefore, the greater the impact of fiscal policy on income.
- 10 Q.4 The statement is not correct. The market structure referred to is clearly one where large firms act in a mutually recognized interdependent fashion. This is clearly an oligopoly. Competitive industries are characterized by many smaller firms with no control over market price that act independently of one another. Sales promotion activities are not evidence of competitive behavior as economists use the term.
- Q.5 The statement is incorrect because it ignores the concept of marginal utility in the attainment of consumer equilibrium. The rule that leads to maximum utility is that expenditures should be apportioned such that the marginal utility gained per last dollar spent on each is the same, i.e., MU divided by price is the same for each good.
- 10 Q.6 The statement is correct because expenditure on the taxed items does not go down proportionally as income falls. In fact the expenditure might not change at all. Therefore, lower income persons are likely to spend a larger proportion of their incomes on the taxed items and so the tax takes a larger percentage of their income.

### PART III:

- 10 Q.7
  - (3) (a) Unemployment represents foregone goods and services that could have been produced to satisfy human wants, i.e., a misallocation or waste of resources.

Continued...
Page 2 of 4

- (3) (b) Inflation causes a redistribution of income in the economy that most observers would consider to be undesirable, e.g., from the old to the young. Also, it may distort production and consumption decisions that will reduce the capital stock over time.
- (4) (c) The answer to this part of the question should recognize the trade-off setting wherein governments have to choose so much inflation in relation to so much unemployment e.g., the Phillips Curve setting. There is no simple answer as to which combination should be chosen. In general, it depends on which is the most detrimental to the economy.

10 0.8

- (3) (a) Competition formally means that no buyer or seller has any control or influence on market price which is set by the independent forces of supply and demand.
- (4) (b) Not necessarily, as it depends on whether or not existing firms are large because of economies of scale available to be captured, or whether their size is the result of man-made or artificial barriers to entry. If the former is the case then increased competitive behavior would be obtained at the cost of foregone economies of scale. In the latter case the increase in competitive behavior is "costless".
- (3) (c) Any reasonable suggestion is acceptable. In general, suggestions should relate to making markets freer and/or reducing existing monopoly power, e.g., anti-combines enforcement, etc.

## PART IV:

10 0.9

- (2) (a) It has a fixed exchange rate because if it were flexible the quantity of foreign exchange supplied would equal the quantity demanded.
- (2) (b) It is over-valued because its value would have to fall to bring the Balance of Payments into equilibrium by increasing exports and reducing imports.
- (3) (c) i) The use of tariffs, quotas, etc., to reduce imports.
  - ii) The use of tight monetary and fiscal policy to reduce income enough to cause imports to fall.
  - iii) Let the exchange rate find its true equilibrium value, i.e., depreciate the currency.

Continued...

Page 3 of 4

(3) (d) Depreciation of the currency is the only satisfactory long-run means of correcting the deficit.

10 0.10

- (3) (a) An imperfectly competitive structure since price is greater than marginal revenue, i.e., the firm's demand curve slopes downward to the right.
- (3) (b) No, because at its present output marginal revenue is greater than long-run marginal cost.
- (4) (c) The firm should increase output by using more resources including a larger scale of plant.

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END OF SOLUTIONS

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## ECONOMICS 104 EDANISATION June, 1985

Marks Time: 3 Hours

PART I: Answer BOTH questions in this part.

- 15 Q-1 In each of the following situations explain carefully what a profit maximizing entrepreneur would do given the circumstances:
  - (4) (a) The marginal cost of the last unit of X produced equals its marginal revenue, and marginal costs fall when output is increased.
  - (4) (b) The firm is, in the short run, doing the best that it can and is sustaining losses; however, total revenue exceeds total variable costs.
  - (4) (c) The price of the last unit of output sold is equal to its marginal cost, and the firm has some monopoly power over the goods it sells.
  - (3) (d) The price of the last unit of output sold equals its short-run marginal cost but is greater than its long-run marginal cost.
- 16 Q.2 The following information pertains to a hypothetical economy:
  - i) The equilibrium level of income (GNP) is \$330 billion.
  - ii) The full employment level of income (GNP) is \$300 billion.
  - iii) The marginal propensity to import is .2, while the marginal propensity to consume domestically produced goods and services is .6.
  - iv) Investment, government spending, taxes and exports are autonomously determined.

## REQUIRED:

- (4) (a) Is there an inflationary or deflationary gap? What is its size?
- (4) (b) By how much and in which direction would the government have to alter its spending if it wished to close any gap noted in part (a)?

Continued...

Page 1 of 4

- (4) (c) Assume that, at the initial equilibrium level of income, saving and investment were equal. If the government did close any gap as noted in part (b), what would happen to saving in relation to investment? Explain.
- (4) (d) If the government decided to eliminate any gap noted in part (a) by altering its taxes rather than by changing its spending, by how much and in which direction would they have to be changed?

## PART II: Answer only THREE questions in this part.

- 10 Q.3 In each of the following situations, identify the economic/ opportunity cost that is present:
  - (3) (a) The federal government spends \$50 million to hire unemployed workers.
  - (3) (b) Farmers use land to produce corn which would have been equally well suited for producing oats.
  - (4) (c) A firm finances its acquisition of new machinery from its retained earnings.
- 10 Q.4 When the federal government increases its spending, it has several alternative means of financing the increase.
  - (3) (a) Name three alternative means.
  - (3) (b) Which alternative means of finance provides the strongest impact on income and employment? Explain.
  - (4) (c) Which alternative provides the weakest impact on income and employment? Explain.
- 10 Q.5 Assume that the government imposes a minimum wage above the prevailing competitive market wage, with the intent of improving the welfare of workers in the market.
  - (3) (a) What will happen to employment in this labor market? Explain.
  - (3) (b) Are any workers better off after the minimum wage is instituted? Explain.
  - (4) (c) Is it possible that the actual wage paid might be less than the legal minimum, and, perhaps, even less than the original competitive wage? Explain.

- 10 Q.6 Suppose the government passes legislation that permits all of the 1,000 producers of a certain type of agricultural good to combine to form a marketing board which would then act as the single seller of the good in the market.
  - (3) (a) What would happen to output and price? Why?
  - (4) (b) What would happen to the allocation of resources in this industry? Why?
  - (3) (c) What would happen to the total utility that consumers would derive from consuming the commodity? Why?

## PART III: Answer only THREE questions in this part.

- 13 Q.7 Assume that a person deposits a newly printed \$500 bill in a bank, having just won it in a contest sponsored by the federal government.
  - (4) (a) If the required reserve ratio is 10%, what is the maximum effect this could have on the money supply? Explain.
  - (4) (b) How would your answer to part (a) differ, if at all, had the \$500 prize been paid by a cheque drawn on another bank? Explain.
  - (5) (c) What type of open market operation could the Bank of Canada undertake to offset the effect you noted in part (a)? Explain.
  - 13 Q.8 The multiplier process plays a very important role in the modern theory of income and employment.
    - (5) (a) Explain how the process is dependent on induced spending.
    - (4) (b) How would induced investment affect the size of the multiplier? Explain.
    - (4) (c) How does the existence of the progressive personal income tax affect the size of the multiplier? Explain.

- 13 Q.9 Assume that, at the present exchange rate, the demand for foreign currency by a country's residents exceeds the supply of foreign currency provided by foreigners.
  - (5) (a) What is the state of this country's Balance of Payments? Explain.
  - (4) (b) Has the present exchange rate been determined by market forces in the foreign exchange market? Explain.
  - (4) (c) If not, what would happen to the relative value of this country's currency if these forces were permitted to determine the exchange rate? Explain.
- Q. 10 Assume that the price of good Y rises because of a rise in labor costs in the industry. As a result the price of good X falls, and consumers' total expenditure on Y falls.
  - (4) (a) Would the rise in the price of Y be described as being the result of a change in the quantity supplied or a change in supply? Explain.
  - (4) (b) Are goods X and Y related? If so, how?
  - (5) (c) What is the elasticity of the demand for Y over the range of the demand curve between the original and the new price of Y? Explain why.

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END OF EXAMINATION

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMADA

# ECONOMICS 104 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

The overall results are somewhat better than those usually obtained for mainly first time writers. There were no apparent problems in the interpretation of questions and the examination satisfactorily tested the competence of students in the course material. The perpetual problem that remains is that some students do not read the questions carefully before attempting to answer them.

## Specific

- Q.1 (a) Many students did not note that profit maximization requires that in addition to marginal cost equalling marginal revenue, marginal cost must cut the marginal revenue from below.
  - (b) While most students correctly noted that total revenue must at least cover variable costs for the firm to continue operating, many did not note that the question specifies that the firm is doing the best that it can. That is, profits are being maximized.
  - (c) This part was well answered. A few stated that the firm should increase output rather than decrease it to take advantage of its stated monopoly power.
  - (d) This part was also well answered. Some students did not recommend a scale of plant adjustment in the long run.
- Q.2 (a) An astonishing number of students could not differentiate between an inflationary and deflationary gap. An almost equal number could not provide the correct size of the gap, even though the text and Lesson Notes go through similar exercises.
  - (b) Most students showed some insight as to how government spending would have to be changed to correct whatever gap was specified in part (a).
  - (c) Few students could determine the actual change in savings that would occur, although most could correctly specify the direction of the change, given their answer to part (a).
  - (d) As in parts (b) and (c), students showed a good general insight as to how taxes would have to be changed, given their answers to part (a), but only a minority correctly determined the actual change required.

Continued ...

- Q.3 (a) Most students correctly noted that, since no alternative is foregone, there is no cost (economic).
  - (b) While most students clearly understood the general concept of opportunity cost as being the value of what is foregone, many argued that the cost of producing corn was the difference between the value of corn and the foregone oats. It is in fact the value of the oats.
  - (c) A similar comment to part (b) is relevant. The cost of the machinery is the next best alternative use of the funds used, not the difference between an actual and potential foregone return.
- Q.4 (a) Only those students who appeared generally ill-prepared could not correctly specify the three sources of government finance.
  - (b) Some students discussed the impact of the strongest source of finance without reference to the fact that the government is simultaneously spending what the source raises. Obviously the expenditure and the source of finance must be considered together before any impact can be assessed.
  - (c) The same comments apply here as in part (b).
- Q.5 (a) Students answered this part very well. A few went well beyond what was required and discussed monopsony even though competition was specified in the question.
  - (b) This part was also well answered. Only those who appeared poorly prepared could not distinguish between those workers who remain employed and those who become unemployed.
  - (c) About half of the students did not note that the situation posed in the question was an ideal "black market" setting, i.e., where workers have an incentive to work for less than the legal minimum wage.
- Q.6 (a) This part of the question was well answered. All but a few students correctly saw the monopoly setting of marketing boards.
  - (b) Students indicated a reasonable understanding of what happens to the allocation of resources under monopoly, but few answers were specific, e.g., the relationship between price and marginal cost, etc.
  - (c) This part was not particularly well handled in general. Most students provided only the most general notion that somehow satisfaction would be lowered.

- Q.7 (a) While most students correctly noted that the event stated in the question would cause the money supply to increase, only about one third correctly specified the actual increase.
  - (b) Surprisingly, only about half of the students considered that the source of the change in a bank's reserves had any bearing on the impact it might have on the money supply.
  - (c) Equally surprising, in this part many students did not know that open market operations have to do with the sale or purchase of government bonds by the bank of Canada.
- Q.8 (a) This part was satisfactorily written. Most students provided a rather general discussion. Some clearly had trouble with the concept of induced spending even though consumption is treated as such in the text and Lesson Notes.
  - (b) If the student indicated a reasonable understanding of what causes a multiplier effect, the impact of induced investment was generally well understood.
  - (c) Quite a number of students were unable to relate how a tax based on income might affect the size of the multiplier even if they answered parts (a) and (b) satisfactorily. This is curious, as the tax acts as a negative induced expenditure.
- Q.9 (a) This part was well answered by most students. Some had a bit of difficulty when attempting to specify what the stated disequilibrium was called.
  - (b) Some students provided answers to this part which were in contradiction to their answers in part (a), i.e., stating that there was a disequilibrium in the country's Balance of Payments, but then asserting [part (b)] that market forces, e.g., supply and demand, alone determined the existing exchange rate.
  - (c) Most students answered this part satisfactorily, although some failed to specify how the exchange was defined when they asserted that it would either rise or fall.
- Q.10 (a) This question was not answered very well, given that it involves the standard differentiation between a change in supply and a change in the quantity supplied. About half of the students who chose this question confused the two concepts even though both the Lesson Notes and the text explicitly cover such a distinction.
  - (b) While most students concluded that the goods were related, only about half correctly distinguished between complements and substitutes.
  - (c) Oddly enough, the answers to this part were better than those to parts (a) and (b). A few students concluded that the elasticity could not be determined because prices and quantities were not shown. This is incorrect, as it was stated that total expenditure on the good whose price changed fell.

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ECONOMICS 104 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

#### FART I:

15 0.1

- (4) (a) Output should be increased to where marginal cost equals marginal revenue and marginal cost is rising. In the present situation, profits are being minimized, not maximized.
- (4) (b) The firm should continue to produce in the short run even though it is sustaining losses. It is minimizing its loss since it is more than covering its variable costs.
- (4) (c) The firm should cut back output to where marginal cost equals marginal revenue (which will be less than price) to take advantage of its monopoly power.
- (3) (d) The firm (which must be competitive) is maximizing its profits in the short run but should increase its scale of plant for operations in the long run to maximize profits, i.e., produce where price equals long-run marginal cost.
- 16 Q.2
  - (4) (a) An inflationary gap of \$12 billion.
  - (4) (b) It would have to lower its spending by the \$12 billion.
  - (4) (c) Saving would fall by an amount equal to the marginal propensity to save times the resulting change in income, i.e., by \$6 billion. Investment would not change.
  - (4) (d) It would have to raise its tax revenue by an amount equal to the desired change in the level of income divided by the tax multiplier, i.e., by \$20 billion.

#### PART II:

10 Q.3

- (3) (a) There is no economic/opportunity cost involved in employing genuinely unemployed workers since no alternative cost is present, i.e., no output is foregone when the government hires them.
- (3) (b) The economic/opportunity cost is the value of the foregone oats that could have been produced.
- (4) (c) The economic/opportunity cost of using the retained earnings is equal to what they could have earned if lent out on the market to someone else.

10 0.4

- (3) (a) It can finance the increase by current tax revenues, by borrowing from the public, or by borrowing from the Bank of Canada (money creation).
- (3) (b) Borrowing from the Bank of Canada provides the strongest impact because the new monies created reduce the tendency for interest rates to rise and therefore for investment to fall. This tendency would offset, in part, the increase in government spending.
- (4) (c) Financing the increased spending out of current taxes provides the weakest impact, because the increase in taxes tends to lower the consumption component of aggregate demand, which is a partial offset to the increase in government spending.

10 2.5

- (3) (a) Employment will fall as employers will cut back the amount of labor they use to a level where the value of marginal product of labor equals the new higher wage.
- (3) (b) Yes, those who remain employed and are working for the minimum wage.
- (4) (c) Yes, because at the minimum wage above the original competitive equilibrium wage there is an excess supply of labor, so workers may take less than the legal minimum wage in order to be employed. The actual wage paid could even be below the original wage since the quantity of labor demanded has fallen.

- 10 Q.6
  - (3) (a) In response to the monopoly power that has been created, output would fall and price would rise.
  - (4) (b) Resources would be improperly allocated, since the marketing board would set price above marginal cost, meaning that output is too small or that too few resources are allocated to the industry.
  - (3) (c) It would fall because fewer units of the commodity would be purchased, and marginal utility of the last units consumed is positive.

### PART III:

- 13 Q.7
  - (4) (a) The money supply could be increased by \$5,000 because there would be a multiple expansion in chequable deposits, given the injection of \$500 in new reserves.
  - (4) (b) There would be no net injection of reserves to the banking system since the \$500 would just be transferred from one bank to another. Therefore, no deposit (money) creation would occur.
  - (5) (c) It would have to offset the injection of new reserves. Therefore it would have to undertake open market sales equal to the \$500 prize.
- 13 Q.8
  - (5) (a) The process requires that when a change in aggregate demand occurs that there are additional new changes in consumption spending induced by the initial change in spending. The multiplier process then is the sum of the initial change in aggregate demand plus all the subsequent round changes in induced spending.
  - (4) (b) It would make the multiplier larger because the subsequent round changes in spending would include investment changes as well as consumption.
  - (4) (c) It would reduce the size of the multiplier because in each subsequent round of new spending, part would go into or come out of tax revenues, automatically making the ultimate impact of the initial change in aggregate demand smaller.

13 0.9

- (5) (a) The Balance of Payments is in a deficit position because the sum of autonomous debit transactions is greater than the sum of autonomous credit transactions, i.e., the quantity of foreign currency demanded exceeds the quantity supplied.
- (4) (b) No. If it were, the Balance of Payments would be continuously in equilibrium, i.e., the quantity of foreign currency demanded and supplied would always be kept in balance (equal).
- (4) (c) The country's currency would fall in relative value, i.e., it would depreciate relative to other currencies. The depreciation would increase the quantity of foreign currency supplied and reduce the quantity demanded since foreigners would want more of the country's goods, and domestic residents would want fewer foreign goods.

13 0.10

- (4) (a) It is caused by a shift in the supply curve upward or to the left and is a decrease in supply rather than a decrease in the quantity supplied, i.e., a movement along a given supply curve.
- (4) (b) Yes, they are complements since a rise in the price of Y causes the demand for X to fall (and its price to consequently fall).
- (5) (c) The demand for Y is elastic over the relevant range because when price went up total expenditure fell, i.e., price and total expenditure move in opposite directions.

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END OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## LAW 108 EXAMINATION March, 1985

Marks Time: 3 Hours

#### Instructions:

- 1. Read carefully and follow precisely the instructions on the front of the examination booklet that relate to the way in which your answers are to be written. You must double-space your answers and start each question (but not necessarily each part of the question) at the top of a page.
- 2. Do NOT write your answers in pencil.
- List on the inside of the front cover of the examination booklet the order in which the questions are answered.
- 4. Be sure to leave a margin to the left-hand side of all your writing.
- 5. The examiner will assume that anything written on any of the left-hand pages of the booklet is rough work, unless a clear and specific statement to the effect that such writing is part of the answer is prominently displayed.
- 6. You may assume that sufficient facts have been given in each problem to enable you to answer the question. If you consider, however, that the facts are inadequate, you may make any reasonable assumptions about any additional facts that you believe are necessary. Be careful that you do not assume facts that enable you to avoid facing the issues presented by the question.
- 7. Before answering any question, read the question carefully and determine the issues that require discussion. Your answer should be confined to a discussion of the issues that you have identified and should be concise and logically presented.
- 8. Reasons must be given for all answers. If you think that a statute is applicable in any question, it is not necessary to state the relevant section numbers. An understanding of the substance of the statutory provisions is of primary importance.

Page 1 of 3

- 12 Q.1 The Securities Commission is concerned about the competence of accountants who give professional opinions in prospectuses and other documents that involve disclosure of the financial aspects of business. Professional standards are now set by the various bodies that control admission to the practice of accounting. Outline briefly one or more ways by which governmental control of the professional competence of accountants could be asserted. You should explain your proposed measure in terms of the legislative function that you recommend and outline briefly (using other examples from the Lesson Notes, if you wish) how the proposal you make might improve competence within the profession. (Note: you should explain principally the legal methods open to the government before you express any opinion on the wisdom or desirability of such a course of action.)
- 9 Q.2 Outline briefly the importance of contracts in exchange transactions. What reasons are there to justify a different treatment for arrangements between people that do not involve exchanges?
- 12 Q.3 Grace saw an ad in a newspaper for a stereo system "complete \$200." She phoned the number listed in the ad and arranged to meet the owner to see the set. She saw the set, but could not hear it because the owner, Trent, told her that his electricity had been cut off. Grace, however, and perhaps foolishly, relied on the appearance and brand name of the set and bought it, paying \$100 cash and giving a cheque for the remainder. Trent let her take away the stereo system. When she got home she found that the system had been bought in England and operated on the wrong voltage and cycles for Canada. It was unusable without major modifications costing more than \$200. Grace stopped payment on the cheque and now wants her money back. Trent wants the balance of the price.

#### REQUIRED:

Outline the arguments that each side might make in this situation and what facts it would be necessary to find to support any particular argument.

13 Q.4 The Sale of Goods Act sets out a method for transferring title from the seller to the buyer. There are, however, exceptions to the rule where a "bona fide purchaser for value without notice" can receive good title to goods even though he has purchased the goods from someone other than the owner. Explain the circumstances under which this effect may arise, and the justification for the result. Illustrate your answer with a specific example.

Page 2 of 3

15 Q.5 Under certain legislation, a warehouse receipt - the receipt given by a warehouseman for the goods stored by him - is negotiable.

## REQUIRED:

- (9) (a) What does the word "negotiable" mean in such a context; and what effect does it have on the relations of those who give, receive, or transfer a warehouse receipt?
- (6) (b) Suppose that a warehouse receipt was offered as security for a debt, what protection would you expect the creditor to seek to ensure that the security interest was effective against other parties?
- 15 Q.6 The general term to refer to a business enterprise of any kind is a "firm". Describe briefly the decision-making features that any firm must have to be able to function effectively and show how these features are found in the legal forms which a firm may take.
- 24 Q.7 Describe or explain in your own words <u>four</u> of the following seven terms:
  - (a) Dilution
  - (b) Selling short
  - (c) Prospectus
  - (d) Limited liability
  - (e) Proxy
  - (f) Stock exchange
  - (g) Closely-held corporation

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END OF EXAMINATION

E108M85

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF MANAGEMENT O

# March, 1985 EXAMINER'S WILLIAMS

#### General

Apart from difficulties on questions 6 and 7, the examination was generally quite well done. There were fewer papers than usual at the extreme upper and lower ranges. Regional disparities were less evident than in previous sessions.

## Specific

- Q.1 This question was generally well done. Most students were familiar with current issues in the accounting profession and with the range of options that the government had available to deal with any perceived problem. Those students who did not do well were unable to discuss the issue apart from the merits of any possible scheme. A very large number referred to developments in the United States and discussed the applicability of that model in the Canadian context.
- Q.2 There was a wide range of responses to this question. The most common error was the identification of contract with the agreement between the parties, as opposed to the idea of contract as the institution. There were few really good marks on this question since only a few students were able to avoid the tautology of saying that a contract without consideration was, almost by definition, a contract outside the exchange relation. These students did not see the problem that they had created for themselves by then referring to contracts with a seal. Apart from those contracts, they ignored the fact that there are many situations where the courts will enforce an agreement without consideration: promissory estoppel, etc. A few students thought that the reference to "exchange" referred to the stock exchange.
- Q.3 This question was again fairly well done, though few students received high marks. The most common error was a lack of imagination regarding the arguments of Grace. Very few offered the argument of "mistake" as the most promising one, since all that she wanted was rescission. Many students were quite unwilling to consider that someone as "stupid as Grace" deserved any help.
- Q.4 This question was not well done. It was a straight-forward question requiring some recollection of a discussion in the lesson notes. The most common illustrations (and errors) were to offer either a case of theft or agency as examples of situations where the bona fide purchaser would get good title in spite of the fact that the vendor had no title.

Continued ...

The first example is simply wrong: a transfer from a thief does not confer title on even a bona fide purchaser. The second is directly related to the point of the question. A transfer by an agent (as, for example, a store clerk, or an agent for an undisclosed principal) is a transfer of the property of the principal and so the purchaser from the agent gets good title because the transfer is of the principal's property. A smaller number used the example of fraud as one where a transfer would confer good title on a transferee. This example is also wrong. A person who obtains goods by fraud gets good title to the goods for the contract is not void, but voidable only. So long as the "defrauder" transfers title to a bona fide purchase before the contract has been avoided by the original transferor, the transfer is not one from a person who does not have title, but one from a person who does have title. Many students either failed to explain precisely how the legislation protected the transferee or did not say why the somewhat improbable situation of the seller remaining in possession would so often occur.

All Ontario, Manitoba and Saskatchewan students were expected to make reference to the **Personal Property Security Act**. It was regarded as an error for those students to refer to the **Conditional Sales Act**. Students from other regions could refer to either act.

- A large number of students did well on the first part of this question: they saw that the receipt could transfer title to the goods covered by it. Very few students considered the implications of the holder in due course. But in the second part they regarded the transfer as like any other one. They said that the lender had to register the property interest, and search the register. If the transfer of the receipt in the first part was seen as transferring title, why was it not seen that the transfer in the second part would do the same? In the language of the Personal Property Security Act, possession of the receipt would be perfection of the security interest. The receipt is a document of title and as such, perfection is achieved by the transfer of possession to the secured party.
- Q.6 Full marks were given to the (many) students who covered all four points required in the answer. Most of the marks awarded were between 12 and 15. Students who wrote nothing or almost nothing or who went off on tangents about "agency" could not be given any credit.
- Q.7 Students were required to give definitions for four of seven terms: almost all of them read the question and therefore gave only four definitions.
  - (a) asked for a definition of "dilution". Most who answered this question received at least 4 of the six marks. In fact, very many received 6 marks since their answers were complete. Almost all included mention of the "right of pre-emption".

Continued...

- (b) asked for a definition of "selling short". Many did not include this in one of their four answers. Of those who did attempt a definition, many did not do a good job.
- (c) asked for a definition of "prospectus". This definition, like "selling short", was not one of the top four. Few students received full marks for this question. Many of them omitted the requirement of approval by the Securities Commission.
- (d) asked for the definition of "limited liability". Most included this in the four definitions given and received full marks. This definition produced the best answers of the seven.
- (e) asked for the definition of "proxy". Many had no problem with the definition. However, some went into a fairly lengthy detail about the management proxy circular without explaining what a proxy was.
- (f) asked for a definition of "stock exchange". The many answers were adequate but few complete. Many did not mention that the Stock Exchange was subject to the overall supervision of the Provincial Securities Commission.
- (g) asked for the definition of "closely-held corporation". Many students answered this well.

# LAW 108 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 12 Q.1 The answer to this question involves a consideration of the role of legislation outlined in Lesson 1 and the development of one such role as outlined in Lesson 5: the assertion of the power to control those who practice certain trades by the imposition of registration and licensing requirements. A pass mark will require that the student see that the problem is one requiring reference to a particular form of legislation. This requirement is made clear in the latter part of the question.
- 9 Q.2 The importance of an exchange transaction is that such transactions are at the core of our society. Our economic system is founded on the enforcement of contracts that are aspects of exchange transactions. An exchange transaction also provides the strongest evidence that the arrangement is made in ways that make enforcement easiest to justify. An arrangement outside such a relation, i.e., a non-exchange arrangement, presents problems of enforcement in that we may be unsure of how seriously the promise was meant.
- 12 Q.3 The range of arguments would include fraud (Trent may have deliberately misled Grace), warranty (Trent may have (impliedly) promised that the set would work in Canada why else would he advertise it in a Canadian newspaper?), misrepresentation (Trent may have said something even if he had not made a promise that it would work in Canada), or mistake the last ditch effort on the part of Grace to get out of the deal. The answer does not have to state the remedies available in each case but they are all the same: recovery of the \$100 paid and a defence to the claim on the cheque.
- Q.4 Such a sale occurs when the goods are, with the consent of the buyer or seller, left in the other's hands in circumstances where, under the agreement between the parties, the party in whose possession the goods are, does not own them. A sale by the possessor transfers title to the buyer provided that the buyer is bona fide. The justification for the result is that the risk of the goods being transferred is put on the party who, by leaving the goods in the possession of another, has allowed that person to appear as owner. As between the true owner and the bona fide purchaser, the law puts the risk of loss on the former rather than on the latter.

Page 1 of 3

15 0.5

- (9) (a) The word "negotiability" means that the receipt can be transferred from the original owner of the goods who received the receipt from the warehouseman, to another who then takes free of any defences that the warehouseman might have against the original party. In effect, the receipt becomes a document of title, entitling the holder of it at any time to call for the delivery of the goods covered by the receipt to be delivered to him.
- (6) (b) Protection can only be obtained by the creditor actually taking possession of the receipt. Such a receipt is "chattel paper" under the PPSA. The taking of possession and not registration perfects the security interest in such properties.

NOTE: This is a difficult question. It requires the student to transfer the knowledge of "negotiable" from the Bills of Exchange Act to another area of the law.

- 15 Q.6 A firm of any kind must be able to make the necessary decisions regarding the running of the business, and accommodate those with different interests in the firm. Thus, there must be mechanisms for making the following kinds of decisions:
  - 1) Those made in the ordinary course of business (e.g., hiring, buying and selling);
  - 2) Similar but more serious and less frequent decisions (e.g., enlarging plant, expanding into new lines);
  - 3) Those that make a very substantial change in the nature of the firm (e.g. merger, liquidation);
  - 4) Where decision-making power has been delegated, decisions to review the exercise of the power (e.g., election of directors).

(See Lesson Notes, p. 9:12.)

24 0.7

(a) Dilution is the reduction in the proportion of shares owned by a shareholder in the capital of a corporation that occurs when more shares are issued. A right of pre-emption can prevent dilution.

Continued...

Page 2 of 3

- (b) Selling short is selling shares that one does not own when delivery is required in the future. The investor who sells short hopes to be able to buy for less than the sale price when the time for delivery comes. The investor is speculating on a fall in the price of shares.
- (c) A prospectus is a document that must be issued when a public offering of securities is made. It has to be approved by the Securities Commission (which issues a receipt when the prospectus is approved). A prospectus must make full, fair and complete disclosure of the corporation's affairs.
- (d) Limited liability is the concept associated with corporations and partnerships whereby an investor can be protected in the event of the insolvency of the firm to the amount of his or her investment in the firm.
- (e)  $\frac{A \text{ proxy}}{\text{vote for him or her at a meeting of shareholders of a corporation.}}$
- (f) A stock exchange (there are five in Canada) is a semi-autonomous body run by a board of governors for the purpose of facilitating the trading of shares by its members for exchange. Its chief function is to facilitate the purchase and sale of shares by bringing those who wish to buy and sell together in one place. It facilitates the operation of a free market for shares. A stock exchange is subject to the overall supervision of the provincial Securities Commission.
- (g) A "closely-held corporation" is distinguished from a "widely-held corporation", and is a corporation that does not offer its securities to the public: it is described in legislation as a non-reporting company (B.C.) or simply as a corporation that does not offer its securities to the public (Ontario). There is no single distinction under the CBCA but the concept persists. In general a closely-held corporation (the paradigm of which is that relatively small family corporation) is free of many of the controls that govern the activities of a widely-held corporation.

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END OF SOLUTIONS

S108M85

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# LAW 108 EXAMINATION June, 1985

#### Marks Instructions:

Time: 3 Hours

- 1. Read carefully and follow precisely the instructions on the front of the examination booklet that relate to the way in which your answers are to be written. You must double-space your answers and start each question (but not necessarily each part of the question) at the top of a page.
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- 6. You may assume that sufficient facts have been given in each problem to enable you to answer the question. If you consider, however, that the facts are inadequate you may make any reasonable assumptions about any additional facts that you believe are necessary. Be careful that you do not assume facts that enable you to avoid facing the issues presented by the question.
- 7. Before answering any question, read the question carefully and determine the issues that require discussion. Your answer should be confined to a discussion of the issues that you have identified and should be concise and logically presented.
- 8. Reasons must be given for all answers. If you think that a statute is applicable in any question, it is not necessary to state the relevant section numbers. An understanding of the substance of the statutory provisions is of primary importance.

15 Q.1 The law regarding consumer transactions has been dramatically changed by legislation in recent years. Much of this legislation has been passed in response to changes in the expectations of society about the legal rights of consumers. The judicial system is also responsive to changes in social expectations, but the courts are limited in the changes that they can bring about.

Identify and briefly discuss the <u>limitations</u> which the courts would have faced in changing consumer law, if the legislation itself had not been changed. Your answer should focus on the functions and limitations of the courts and the judicial process, rather than dealing with consumer law in detail.

15 Q.2 David sells goods on consignment, that is, he maintains a store where second-hand clothing, tools, and furniture are sold. People bring their goods to him, and a price at which the goods are to be sold is agreed on. On a sale David remits the price (less his commission of 20%) to the owner, and the buyer gets the goods. All sales are by cash or credit card (Visa, Master Card).

#### REQUIRED:

- (9) (a) Describe a sale in these circumstances in legal terms and explain the legal role of each party: David, the owner, and the buyer.
- (6) (b) Supposing that a cheque is used, what are the relations between all parties? In what respect would the use of a credit card change the result from what it would be in a cash sale?
- 6 Q.3 On the basis of the same facts as in Question 2:

Describe the legal effect of David's selling a second-hand T.V. for one-half of the price agreed to between him and the owner, and the rights of each of the parties involved.

- 9 Q.4 Explain the significance of the concept of "property" in goods and why the passing of property is an important (or potentially important) question in any case of sale of goods.
- 9.5 Explain the function of the principle of indemnity in the law of insurance.
- 12 Q.6 Explain what is involved in the process called "collective bargaining" and what the purpose of the process is.
- 12 Q.7 Outline briefly and explain why the Canada Business Corporations

  Act contains provisions that regulate the circumstances in which
  a corporation can transfer any of its assets to its shareholders.

12 Q.8 Grace and her husband Paul own 75% of the shares of a corporation, Paulace Inc., that owns and operates a small chain of retail stores. Elaine owns the remaining 25% of the shares of Paulace Inc. All three are directors of the corporation. Elaine is in charge of decisions regarding the location of stores. She thought that a location in a new shopping centre would be a good investment. She accordingly took out the lease for a store in the name of Eniale & Co. Ltd., a corporation that she owns. The rent agreed upon was \$1,500 per month.

One month later, she recommended that the chain lease space in the shopping centre and she further recommended a sub-lease of the store leased by Eniale & Co. Ltd. for \$3,000 per month. The landlord of the shopping centre consented to the sub-lease, and the chain opened the new branch.

All the facts now come to light.

#### REOUIRED:

- (9) (a) The firm wants to know its right against Elaine and her corporation. Discuss.
- (3) (b) Would it matter, and if so, how, if Elaine were not a director but only an officer of Paulace Inc.?
- 13 Q.9 Describe briefly the ways which the independence of auditors is protected and why it should be necessary to do so.

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END OF EXAMINATION

### LAW 108 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General.

The examination was not well done overall. The most surprising feature of the answers was the students' lack of understanding of the legal significance of transactions into which they themselves must have frequently entered into, or relations that are so common in Canadian society that one could almost have assumed that their nature was common knowledge.

#### Specific

- Q.1 This question was generally adequately done. The most common error lay in stating either the characteristics of legislation or the features of the law of consumer transactions.
- Q.2 (a) This part of the question was generally well done.
  - (b) In contrast to part (a) this part was very poorly done. Students used technical words like "holder in due course", "endorsee", etc., without any indication that the meaning of the words was understood. Such terms were, in any case, irrelevant to the answer. One wondered if any student had ever paid for anything by cheque.

In spite of the widespread use of credit cards and, presumably, even their use by some students, the legal relations created by a transaction financed by a credit card were almost always misunderstood, simply unknown, or not considered.

- Q.3 The most common error in this question lay in the failure to specify who had the right to complain. The buyer would hardly complain, yet many said that he could and would.
- Q.4 This question was very poorly done by the bulk of the students. No obvious reason was apparent. It was clear that the combination of topics from the lesson notes that was required for an adequate answer was beyond the capacity of most students.
- Q.5 This question was well done.
- Q.6 As with credit card purchases, there is no evidence that something as common and as frequently discussed in the press, is generally understood, let alone understood in the kind of detail required for full marks. Some truly surprising answers were provided. This question was poorly done. The most common error lay in a failure to mention the process and effect of certification.

Continued...

- Q.7 This question was, in general, very well done.
- Q.8 (a) Most answers were adequate. Very few students discussed the firm's right to proceed against Elaine's corporation (or the reasons for the right). A surprising number of students referred to Elaine and her co-directors as "partners".
  - (b) The most common error lay in giving no reason for the answer (which was usually correct).
- Q.9 This question was, in general, well done.

# June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 15 Q.1 The focus of this question is on the outline of the judicial process in Lesson 1 and not so much on the actual rules governing consumer transactions in Lesson 5. The question requires a consideration of the doctrine of precedent and of the general features of the judicial process: the duty of courts to follow previous decisions; the effect of the hierarchy of courts; and the problem of the courts' limited access to facts and the fact that the courts can only respond to the disputes which they are asked to resolve. The answers could become very sophisticated, yet a passing grade could be fairly easily obtained by even a slight effort to relate the problems discussed in Lessons 2 and 5 to the more theoretical aspects of Lesson 1.
- 15 0.2
  - (9) (a) The property in the goods is in the owner; David is the owner's agent for the purposes of making the sale at the agreed price. On a sale made for cash, property passes to the buyer and, until the owner is paid the 80% of the price, David is the owner's debtor.
  - (6) (b) If a cheque was used the only change would be that while David would owe the same amount to the owner, he would be paid by the bank in accordance with the agreement between David and the bank. The bank would then be the creditor of the buyer who would have to pay the bank. A cheque sale has no effect on the passing of property. The bank's right to collect from its customer is based on the credit card agreement and not on any assignment of the debt owed by the buyer to the owner of the goods.
- Q.3 David is in breach of his obligation as the owner's agent. He remains liable for 80% of the agreed purchase price. David is, however, a mercantile agent in possession of the goods with the permission of the owner and has the power to transfer good title to the buyer, provided that the buyer buys in good faith.
- 9 Q.4 "Property" means the right of ownership to the goods. It is always important to know who owns something at any particular time. The person who owns goods that have been sold has the right to keep them until property passes (and bears the corresponding risk of loss). Similarly, once property has passed, the seller can sue for the price and the goods are at the risk of

Continued...
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the buyer. Should goods be destroyed at any point between the making of the contract of sale and actual delivery to the buyer, it will be very important to determine which party bears the risk of loss.

- Q.5 The principle of indemnity ensures that an insured can never recover more than the amount of his loss under an insurance policy. The principle operates to ensure that taking out insurance is not gambling and reduces the risk of an insured deliberately creating a loss in order to make a profit. It is associated with the concept of insurable interest. It is not relevant in contracts of life insurance. Reference should also be made to the insurer's rights of subrogation and contribution.
- 12 Q.6 "Collective bargaining" is the process whereby a union (representing the employees) bargains with the employer over wages and conditions of employment. The process begins when a union is certified by the Labor Relations Board as the "bargaining agent" for all or a group of employees of the employer. Certification gives the union the power to compel the employer to bargain and it is the sole bargaining agent. If the bargaining results in agreement, a "collective agreement" is established. If the bargaining breaks down a strike or lock-out may occur. Such devices are designed to put pressure on the other party to agree.

The purpose of collective bargaining is to equalize (or, at least, go some way toward that end) the bargaining power of the employees and employer so that the employees have more bargaining power to protect their interests.

Allow for specific examples.

12 Q.7 A corporation cannot pay dividends or reacquire any of its outstanding shares if, after the payment, the corporation would be unable to meet the claims of its creditor as they come due, or the corporation's assets would be less than the total of its liabilities and stated capital of all classes.

The provisions of the CBCA regarding the payment of dividends and the reacquisition of its own shares govern those cases where, by making the payment, the corporation might be allowing the shareholders, the investors in the company, to obtain the assets of the corporation in priority to the creditors of the corporation. It is a fundamental feature of the law governing corporations that the claims of shareholders are subordinated to the claims of creditors.

12 Q.8 As madirector, Elaine owes the corporation a fiduciary obligation. She cannot therefore profit from a breach of that duty - her breach being her failure to disclose her interest in her corporation. Neither Elaine nor her corporation can profit from the breach of Elaine's fiduciary duty: her corporation is not a bona fide third party since it is wholly owned by Elaine.

Prima facie, Paulace Inc. can recover the amount by which the rent of the sub-lease exceeds that of the lease.

The result would be the same if Elaine was only an officer - as an agent she owes her employer, her principal, a fiduciary duty.

Q.9 Auditors are appointed by the shareholders at the Annual Meeting.
Auditors are nearly always appointed based on a recommendation
from management. Auditors are supposed to represent the shareholders and to report to them on the financial state of the
corporation. Auditors should therefore not become closely
identified with management; they may have to take the shareholders' side against management. Sometimes, in a large corporation, an audit committee of the Board may act as a kind of
buffer to separate the auditor and management.

100

END OF SOLUTIONS

# MANAGERIAL STATISTICS 203 EXAMINATION March, 1985

Marks Time: 3 Hours

NOTE: Show ALL formulas and calculations used to obtain solutions.

ATTACHED: Schedule of Equations and Formulas
Standard Normal Probability Distribution Table - Table 1
Student's Probability Distribution Table - Table 2

- 10 Q.1 For each of the following ten statements, determine which word in the brackets makes the statement true. Enter that word opposite the statement letter in your examination booklet. 1 mark for each correct answer.
  - (a) The class mark is the average of the stated lower and upper class (intervals, limits).
  - (b) As the sample size increases, the standard error of the mean (decreases, increases).
  - (c) The rejection of a null hypothesis when it is actually (true, false) is called a Type I error.
  - (d) The coefficient of determination is usually greater than zero, but (can, cannot) be less than zero.
  - (e) When constructing a frequency polygon, plotted points along the horizontal axis correspond to class (marks, limits).
  - (f) Quota sampling is (more, less) reliable than systematic sampling.
  - (g) The t distribution is used in hypothesis testing when the standard deviation of the (population, sample) is unknown.
  - (h) In linear regression analysis, a linear relationship is assumed to exist between the variable Y and the (dependent, independent) variable X.
  - (i) If a probability distribution is positively skewed, the mean is (larger, smaller) than the median.
  - (j) If a sample is to be an accurate representation of the population from which it is drawn, it must be free of (bias, error).

Q.2 Rose, manager of Rosie's Tax Services, believes that 30% of all income tax returns completed by her staff contain errors. Rose selects a random sample of 5 completed returns.

# REQUIRED:

- (3) (a) What is the probability that none of the returns in the sample contain errors?
- (7) (b) What is the probability that more than 3 returns in the sample contain errors?
- Q.3 The financial manager of a department store wishes to determine the relationship between the dollar value of a purchase and method of payment by a customer. He has obtained the following information from a random sample of payment receipts for 400 recent purchases.

Dollar Value of Purchase	Method of Payment Cash Credit Card				
Under \$40.00	80	100			
\$40.00 and over	40	180			

## REQUIRED:

What is the probability that:

- (2) (a) a purchase is paid for by credit card?
- (2) (b) a purchase is under \$40.00 and is paid for by credit card?
- (3) (c) a purchase is \$40.00 or over, given the customer pays cash?
- (3) (d) a customer pays by credit card, given the purchase was under \$40.00?
- Q.4 A national survey company wishes to conduct a survey of voters' attitudes about a referendum on a national issue. For the referendum to pass, 51% or more of the voters must be in favor of the issue.

#### REQUIRED:

- (5) (a) What sample size is necessary to estimate within  $\pm 1\%$ , with a confidence of 95%, the true proportion of voters who would vote in favor of the issue?
  - (b) **NOTE:** Question 4(b) was deleted from the examination. This part was ambiguous, in that it required certain assumptions to be made. Appropriate adjustments were made in marking the examination papers.

Q.5 The quarterly profits for Torbay Enterprises Ltd. for 9 quarters are given below:

Year	Quarter	<b>Profits</b> (\$000's)
1982	4	32
1983	i	38
1983	2	37
1983	3	33
1983	4	36
1984	1	43
1984	2	42
1984	3	37
1984	4	35

The quarters are coded with the 4th quarter of 1983 equal to zero. The following values have been calculated by Torbay's accountant:  $\Sigma xY = 29$ ,  $\Sigma x^2 = 60$ ,  $\Sigma Y^2 = 12429$ .

## REQUIRED:

15

- (4) (a) Calculate the trend line for quarterly profits (carry four decimal places in calculations). State the origin.
- (5) (b) What percentage of the variation in profits is explained by the trend line?
- (6) (c) The quarterly seasonal indexes for quarterly profits are as follows:

Quarter	Seasonal Inde
1	111
2	107
3	93
4	89

Forecast the profits for the company for the first quarter of 1985. Do you feel this is a valid forecast? Explain why.

Q.6 The credit office of Harrigan's mailed statements for payment due to 20 customers during one day. The balances are given below:

\$53.32	\$17.80	\$33.70	\$35.26
39.89	10.70	57.05	8.49
67.54	30.06	19.97	15.97
21.47	50.10	73.93	21.25
36.05	19.92	48.67	4.86

#### REQUIRED:

- (4) (a) Calculate the mean and median for these balances.
- (6) (b) Construct a relative frequency distribution and a 'more than' cumulative relative frequency distribution of the data using 5 intervals, with the lower limit of the first interval equal to zero.
- (1) (c) What percentage of balances are \$15.00 or more, but less than \$45.00?
- (4) (d) Construct a relative frequency histogram for these data.

15 Q.7 The operator of a corner store wishes to know how many copies of a daily newspaper to stock each day. The newspapers cost him 15 cents each, he sells them for 25 cents each and those unsold at the end of the day are dumped into the recycling bin. From past experience, the operator was able to produce the following relative frequency distribution of sales.

Number of Papers Sold per Day	Relative Frequency
20	.50
25	.40
30	.10

#### REQUIRED:

- (2) (a) What is the average number of papers sold per day?
- (3) (b) If the operator stocked this average number of papers each day, and given the states of nature, what would his expected daily profit be?
- (6) (c) Construct the conditional profit table.
- (4) (d) Use the expected profit method to determine how many newspapers should be stocked each day.
- 15 Q.8 The auditor for the Bank of West Adanac takes a random sample of 100 accounts from a file of 1,000 savings accounts. He calculates the mean account balance to be \$473.25, with a standard deviation of \$107.25.

### REQUIRED:

- (5) (a) Calculate the standard error of the mean.
- (5) (b) The bank's manager claims the average savings account balance has increased to \$500.00. Does the auditor's sample evidence support that claim? Use  $\alpha = 0.05$ .
- (5) (c) What is the 99% confidence interval for the true population mean account balance?

100

**END OF EXAMINATION** 

# **EQUATIONS AND FORMULAS**

$$\bar{x} = \frac{\sum x}{n}$$

G.M. = 
$$\sqrt[n]{(x_1)(x_2)(x_3)...(x_n)} - 1$$

$$\frac{Q_3-Q_1}{2}$$

$$\hat{\sigma} = \sqrt{\frac{\sum (x - \overline{x})^2}{n - 1}}$$

$$u = np$$

$$Z = \frac{x - u}{\sigma}$$

$$\hat{\sigma}_{\overline{X}} = \sqrt{\frac{\hat{\sigma}}{n}}$$

$$\hat{\sigma}_{\overline{p}} = \sqrt{\frac{\overline{p}\overline{q}}{n}}$$

$$\hat{Y} = a + bX$$

$$a = \overline{Y} - b\overline{X}$$

$$r^{2} = \frac{a\Sigma Y + b\Sigma XY - n\overline{Y}^{2}}{\Sigma Y^{2} - n\overline{Y}^{2}}$$

$$b = \frac{\sum xY}{\sum x^2}$$

$$r^2 = \frac{a\Sigma Y + b\Sigma xY - n\overline{Y}^2}{\Sigma Y^2 - n\overline{Y}^2}$$

$$S_e = \sqrt{\frac{\Sigma (Y - \hat{Y})^2}{n - 2}}$$

$$Z = \frac{x/n - p}{\sqrt{p(1 - p)/n}}$$

$$\overline{X}_{\omega} = \frac{\sum (w \times x)}{\sum w}$$

$$\frac{\hat{\sigma}}{\overline{x}}$$
 (100)

$$P(r;n) = \frac{n!}{r!(n-r)!} p^r q^{n-r}$$

$$\sigma = \sqrt{npq}$$

$$Z = \frac{\overline{x} - u}{\sigma_{\overline{x}}}$$

$$u_{\overline{p}} = p$$

$$\sqrt{\frac{N-n}{N-1}}$$

$$b = \frac{\sum XY - n\overline{X}\overline{Y}}{\sum X^2 - n\overline{X}^2}$$

$$S_e = \sqrt{\frac{\Sigma Y^2 - a\Sigma Y - b\Sigma XY}{n-2}}$$

$$\hat{\mathbf{Y}} = \mathbf{a} + \mathbf{b}\mathbf{x}$$

$$a = \overline{Y}$$

$$r^{2} = 1 - \frac{\Sigma (Y - \hat{Y})^{2}}{\Sigma (Y - \overline{Y})^{2}}$$

$$S_{e} = \sqrt{\frac{\Sigma Y^{2} - a\Sigma Y - b\Sigma xY}{n-2}}$$

$$t = \frac{\overline{x} - u}{s/\sqrt{n}}$$

$$\hat{Y} \pm \iota S_{o}$$

$$P(A \text{ or } B) = P(A) + P(B) - P(AB)$$

$$\mu = \frac{\sum x}{N}$$

Laspeyres index = 
$$\frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

$$\sigma^2 = \frac{\sum (x - \mu)^2}{N}$$

Paasche index = 
$$\frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100$$

$$s^2 = \frac{\sum (x - \overline{x})^2}{n - 1}$$

Weighted aggregates price index = 
$$\frac{\Sigma P_1 Q}{\Sigma P_0 Q} \times 100$$

$$\sigma_{\overline{x}} = \frac{\sigma}{\sqrt{n}}$$

Unweighted aggregates quantity index = 
$$\frac{\Sigma Q_1}{\Sigma Q_0} \times 100$$

$$\sigma_{\overline{p}} = \sqrt{\frac{pq}{n}}$$

$$P(B|A)$$
 = the probability of event B, given that event A has happened

$$\sigma = \sqrt{\sigma^2} = \sqrt{\frac{\sum (x - \mu)^2}{N}}$$

Median = the  $\left(\frac{n+1}{2}\right)$  th item in a data array where: n = the number of items in the data array

$$s = \sqrt{s^2} = \sqrt{\frac{\sum (x - \overline{x})^2}{n - 1}}$$

$$Range = \frac{Value \ of \ highest}{observation} - \frac{Value \ of \ lowest}{observation}$$

 $b = \frac{Y_2 - Y_1}{X_2 - X_1}$ 

P(A) = the probability of event A happening

$$P(B|A) = \frac{P(BA)}{P(A)}$$

$$P(A \text{ or } B) = \text{the probability of } either A \text{ or } B \text{ happening}$$

P(A)

Interquartile range = 
$$Q_3 - Q_1$$

 $P(A \mid B) = \frac{P(AB)}{P(B)}$ 

Variation of the Y values around their own mean 
$$= \Sigma (Y - \overline{Y})^2$$

Variation of the Y values around the regression line =  $\Sigma (Y - \hat{Y})^2$ 

Class mark =  $\frac{\text{Stated lower limit} + \text{Stated upper limit}}{2}$ 

$$P(AB) = P(A | B) \times P(B)$$

$$P(A \text{ or } B) = P(A) + P(B)$$

$$P(AB) = P(A) \times P(B)$$

$$P(BA) = P(B \mid A) \times P(A)$$

00 .01 7 02 03 04 .05 .06 .07 .08 .09 0.0 .0000 .0040 .0080 .0120 .0160 .0199 0239 .0279 .0319 .0359 .0398 0.1 .0438 .0478 .0517 0557 0596 .0636 .0675 .0714 .0753 0.2 .0793 0832 0871 .0910 .09480987 .1026 .1064 .1141 0.3 .1179 1217 1255 1293 .1331 1368 1406 1443 1480 .1517 0.4 .1554 .1591 .1628 1664 1700 1736 1772 1808 1844 .1879 .1915 .1985 0.5 .1950 2019 .2054 2088 .2123 2157 2190 2224 2257 0.6 2291 2324 2549 2389 2422 2454 2486 2517 2580 .2611 0.7 2642 2673 2704 2734 .2764 2794 .2823 .2852 0.8 2881 2910 2939 2967 2995 3023 .3051 3078 3106 .3133 0.9 .3159 .3212 .3238 .3264 3289 3186 .3315 3340 3365 3389 1.0 .3413 3438 3461 3485 3508 3531 3554 3577 3599 3621 3708 3729 1.1 3643 3665 3686 3749 .3770 3790 3810 3830 .3849 .3869 3888 3907 3925 .3944 .3962 3980 .3997 4015 1.3 .4032 4049 4066 .4082 .4099 .4115 .4131 .4147 .4162 .4177 1.4 .4192 .4207 .4222 .4236 .4251 4265 4279 4292 4306 4319 4357 1.5 4332 4345 4370 .4382 4406 4394 4418 .4429 4441 1.6 .4452 .4463 .4474 4484 4495 .4505 4515 .4525 .4535 4545 .4554 .4564 .4573 .4582 4591 .4599 4608 .4616 .4625 .4633 1.8 .4641 .4649 .4656 .4664 4671 .4678 .4686 .4693 .4699 .4706 1.9 .4713 .4719 .4726 .4732 4738 .4744 .4750 4756 .4767 4761 2.0 .4772 .4778 4783 .4788 4793 4798 4803 4808 .4812 4817 2.1 4821 4826 4830 4834 4838 4842 4846 .4850 .4854 4857 .4861 .4864 4868 .4871 4875 .4878 4881 .4884 .4887 4890 .4893 .4896 4898 .4901 4904 .4906 4909 .4913 .4911 4916 2.4 .4918 .4922 .4925 4927 .4929 4931 .4932 .4934 4936 4920 4945 2.5 4940 4941 .4943 4948 4949 .4938 .4946 .4951 4952 2.6 .4953 4955 .4956 .4957 4959 .4960 4961 .4962 .4963 4946 .4965 4966 .4967 .4968 4969 .4970 4971 4972 .4973 4974 2.8 .4974 4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 4981 2.9 4981 4982 4982 4983 4984 4984 4985 4985 4986 4986 3.0 .4987 4987 .4987 4988 4988 4989 4989 4989 .4990 4990

TABLE 1 Standard Normal Probability Distribution

		Area in bot	h tails combined	
Degrees of freedom	.10	.05	.02	.01
1	6.314	12.706	31.821	63.657
2	2.920	4.303	6.965	9.925
2 3	2.353	3.182	4.541	5.841
4	2.132	2.776	3.747	4.604
5	2.015	2.571	3.365	4.032
6	1.943	2.447	3.143	3.707
7	1.895	2.365	2.998	3.499
8	1.860	2.306	2.896	3.355
9	1.833	2.262	2.821	3,250
10	1.812	2.228	2.764	3.169
11	1.796	2.201	2.718	3.106
12	1.782	2.179	2.681	3.055
13	1.771	2.160	2.650	3.012
14	1.761	2.145	2.624	2.977
15	1.753	2.131	2.602	2.947
16	1.746	2.120	2.583	2.921
17	1.740	2.110	2.567	2.898
18	1.734	2.101	2.552	2.878
19	1.729	2.093	2.539	2.861
20	1.725	2.086	2.528	2.845
21	1.721	2.080	2.518	2.831
22	1.717	2.074	2.508	2.819
23	1.714	2.069	2.500	2.807
24	1.711	2.064	2.492	2.797
25	1.708	2.060	2.485	2.787
26	1.706	2.056	2.479	2.779
27	1.703	2.052	2.473	2,771
28	1.701	2.048	2.467	2.763
29	1.699	2.045	2.462	2.756
30	1.697	2,042	2.457	2.750
40	1.684	2.021	2.423	2.704
60	1.671	2.000	2.390	2.660
120	1.658	1.980	2,358	2.617
Vormal Distribution	1.645	1.960	2.326	2.576

TABLE 2 t Distribution

# STATISTICS 203 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### General

Overall, the examination was quite well answered. Nevertheless, there were many calculation errors, and some students had difficulty in interpreting their numerical results.

## Specific

- Q.1 Most often correct: (b), (e), (j).
  Most often incorrect: (a), (d), (h), (i).
- Q.2 (a) The most common errors were incorrect values for p and q.
  - (b) Many students included P(r=3) in the calculation for P(r>3). Also, there were errors in handling the powers, factorials and decimals.
- Q.3 (a) There were few errors in this part.
- (b), (c), (d) The most common errors were the selection of the denominators for calculating the probabilities.
- Q.4 Students had difficulty with squares and square roots. Some did not use the correct formula and some used Z=1.64 instead of 1.96.
- Q.5 (a) Often, the origin was not stated, and if stated, was not correct.
  - (b) There were many calculation errors for  ${\bf r}^2$ . These included  ${\bf r}^2$  1, negative or extremely small.
  - (c) The most common errors were: incorrect number of quarters used in forecast; failure to use seasonal index used; statement on validity of forecast either missing or incorrect reasons given.
- Q.6 (a) Quite often correct, but some failed to put in \$.
  - (b) Often the headings were missing, and some students did not include the upper class limits for the 'more than' cumulative relative frequency distribution.
  - (c) Many students did not show the calculations used to obtain the solution.

- (d) The most common errors were: incorrect or missing heading for the histogram; incorrect horizontal and vertical scale; and captions missing for vertical and horizontal scales.
- Q.7 (a) Quite often the simple mean (25) instead of the weighted mean (23) was calculated.
  - (b) This part was most often calculated incorrectly.
  - (c) Some students had difficulty calculating conditional profits.
  - (d) The most common mistake was applying the probabilities to the stock levels instead of the states of nature when calculating expected profits.
- Q.8 (a) Many students failed to use the finite population multiplier.
  - (b) Students used  $Z_{_{\rm C}}$  = 1.96 instead of 1.645 and failed to interpret the results of the statistical test, or gave incomplete interpretations.
  - (c) Quite often the wrong value,  $\bar{x}=500$  instead of  $\bar{x}=473.25$ , was used in calculating the confidence interval. Also, the confidence interval was often not stated. Students specified the limits only.

# MANAGERIAL STATISTICS 203 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 10 Q.1 NOTE: 1 mark each.
  - (a) limits
  - (b) decreases
  - (c) true
  - (d) cannot
  - (e) marks
  - (f) less
  - (g) population
  - (h) independent
  - (i) larger
  - (j) bias

10 Q.2 Given: 
$$n = 5$$
,  $p = .30$ ,  $q = .70$ 

(3) (a) 
$$P(r = 0) = \frac{n!}{r!(n-r)!} p^r q^{n-r} = \frac{5!}{0!(5-0)!} (.30)^0 (.70)^{5-0}$$
  
$$= \frac{5!}{5!} 1 (.70)^5 = \underline{0.16807}$$

(b) 
$$P(r > 3) = P(r = 4) + P(r = 5)$$

(3) 
$$P(r = 4) = \frac{5!}{4!(5-4)!} (.30)^{4} (.70)^{5-4} = \frac{5.4!}{4!1!} (.30)^{4} (.70)^{1}$$
$$= 5.(0.0081) (0.70) = 0.02835$$

(3) 
$$P(r = 5) = \frac{5!}{5!(5-5)!} (.30)^{5}(.70)^{5-5} = \frac{5!}{5!} (.30)^{5} (1)$$
$$= 1 (0.00243) 1 = 0.00243$$

(1) 
$$P(r > 3) = P(r = 4) + P(r = 5)$$
  
=  $0.02835 + 0.00243 = 0.03078$ 

OR: 
$$P(r > 3) = 1 - [P(0) + P(1) + P(2) + P(3)]$$
  
=  $1 - 0.1681 - 0.3602 - 0.3087 - 0.1323$   
=  $0.0307$ 

(2) (a) P(pay by credit card) = 
$$(100 + 180)/400 = 0.70$$

(2) (b) P(under 
$$$40.00 \text{ and }$$
 pay by credit card) =  $100/400 = 0.25$ 

$$= \frac{40/400}{120/400} = \frac{40}{120} = \frac{1}{3} = \frac{0.333}{120}$$

$$= \frac{100/400}{180/400} = \frac{100}{180} = \frac{5}{9} = 0.556$$

(a) 
$$Z = \frac{\bar{p} - p}{\sigma \bar{p}}, \ \bar{p} - p = 0.01, \ \sigma \bar{p} = \sqrt{\frac{(.5)(.5)}{n}} = \frac{0.5}{\sqrt{n}}$$

$$Z = \frac{0.01}{\frac{0.5}{\sqrt{n}}} = \frac{0.01\sqrt{n}}{0.5} = 0.02\sqrt{n}$$

For 95% confidence 
$$\angle = 1.96$$

$$1.96 = 0.02 \sqrt{n}$$
  $\sqrt{n} = \frac{1.96}{0.02}$ ,  $\frac{n = 9604}{0.02}$ 

(b) NOTE: Question 4(b) was deleted from the examination. This part was ambiguous, in that it required certain assumptions to be made. Appropriate adjustments were made in marking the examination papers.

(1) (a) 
$$a = \overline{Y} = \frac{333}{9} = \frac{37.0}{9}$$

(1) 
$$b = \frac{\sum xY}{\sum x^2} = \frac{29}{60} = \frac{0.4833}{}$$

(1) The trend line is 
$$\hat{Y} = 37.0 + 0.4833 \text{ x}$$

(b) Coefficient of determination

(4) 
$$r^{2} = \frac{a\Sigma Y + b \Sigma xY - n\overline{Y}^{2}}{\Sigma Y^{2} - n\overline{Y}^{2}}$$

$$= \frac{37(333) + 0.4833(29) - 9(37)^{2}}{12429 - 9(37)^{2}}$$

$$= \frac{12321 + 14.016 - 12321}{12429 - 12321}$$

$$= \frac{14.016}{108} = 0.1298 = \frac{0.13}{108}$$

- (1) 13% of the variation in profits is explained by the trend line.
- (2) (c) Forecast Ŷ for first quarter of 1985.

(2) Adjust for seasonality

- (2) The validity of the forecast is questionable. The profits are seasonal a very small percentage of the variation is explained by the regression line. The amount of data available is small, and the forecast extends quite far into the future.
- Q.6 (1) (a) The data arrayed are:

$$\bar{x} = 666.00/20 = \$33.30$$

(1) Median = 
$$(30.06 + 33.70)/2 = $31.88$$

Continued . . .

# (6) (b) Frequency distribution:

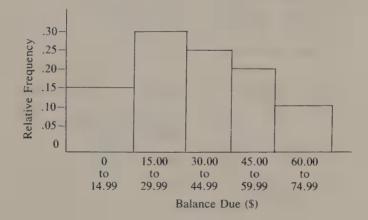
Balance Due	Frequency	Relative Frequency
\$ 0.00-\$14.99	3	.15
15.00- 29.99	6	.30
30.00- 44.99	5	.25
45.00- 59.99	4	.20
60.00- 74.99	2	.10
	20	1.00

'More than' cumulative relative frequency distribution:

Cumulative Relative Frequency
1.00
.85
.55
.30
.10
.00

(1) (c) P(Balances 
$$> $14.99) = .85$$
  
P(Balances  $> $44.99) = .30$   
P( $$15.00 \le Balances < $45.00) = .85 - .30$   
= .55\_

# (4) (d) Relative frequency histogram:



15 Q.7

(2) (a) Average number of papers sold:

$$\bar{x} = \frac{.50 \times 20 + .40 \times 25 + .10 \times 30}{.50 + .40 + .10}$$

$$= \frac{10.0 + 10.0 + 3.0}{1.00} = 23$$

(3) (b) Expected daily profit:

#### State of Nature

$$.50 \times 1.55 + .40 \times 2.30 + .10 \times 2.30 = \$1.925$$

Expected daily profit = \$1.93

(6) (c) Conditional profit table:

Stock Level	State of Nature				
	20	25	30		
20	2.00	2.00	2.00		
25	1.25	2.50	2.50		
30	0.50	1.75	3.00		

(4) (d) Expected profits:

$$.50 \times 2.00 + .40 \times 2.00 + .10 \times 2.00 = $2.00$$
  
 $.50 \times 1.25 + .40 \times 2.50 + .10 \times 2.50 = $1.875$   
 $.50 \times 0.50 + .40 \times 1.75 + .10 \times 3.00 = $1.25$ 

20 papers should be stocked each day.

15 Q.8

(5) (a) Given: N = 1,000, n = 100,  $\bar{x}$  = \$473.25,  $\hat{\sigma}$  = \$107.25. Because n > 5% of N, use FPM.

$$\hat{\sigma}_{\bar{X}} = \sqrt{\frac{\hat{\sigma}}{n}} \sqrt{\frac{N-n}{N-1}} = \frac{107.25}{\sqrt{100}} \sqrt{\frac{1,000-100}{1,000-1}}$$

$$= 10.725 \sqrt{\frac{900}{999}} = 10.725 (.9492)$$

$$= \$10.18$$

Continued . . .

(1) (b) One-tailed test with  $\alpha = 0.05, \mathbb{Z}_c = 1.645$ 

(2) 
$$Z = \frac{\bar{x} - \mu}{\hat{\sigma}_{\bar{x}}} = \frac{473.25 - 500.00}{10.18}$$

$$= \frac{-26.75}{10.18} = \frac{-2.63}{10.18}$$

- (2) Because  $\mathbb{Z} = -2.63 < \mathbb{Z}_c = -1.645$ , the bank manager's claim is not supported.
- (1) (c) 99% confidence interval:

$$\mathbb{Z}_{005} = \pm 2.575, \, \hat{\sigma}_{\bar{X}} = 10.18$$

(2) C.I. = 
$$\bar{x} \pm 2.575 \ \hat{\sigma}_{\bar{x}}$$
  
 $473.25 \pm 2.575 \ (10.18)$   
=  $473.25 \pm 26.21$ 

(2) The 99% confidence interval is:  $447.04 < \mu < 499.46$ 

100

**END OF SOLUTIONS** 

# MANAGERIAL STATISTICS 203 EXAMINATION June, 1985

Marks Time: 3 Hours

NOTE: Show ALL formulas and calculations used to obtain the solutions.

ATTACHED: Schedule of Equations and Formulas
Standard Normal Probability Distribution Table - Table 1
Student's Probability Distribution Table - Table 2

- 10 Q.1 For each of the following ten statements determine which word in the brackets makes the statement true. Enter that word opposite the statement letter in your examination booklet. 1 mark for each correct answer.
  - (a) Seasonal variation is defined as repetitive and predictable movement around the trend line for periods (longer, shorter) than a year.
  - (b) The value of every observation in a data set is taken into account when calculating the (median, mean).
  - (c) A relative measure of the variability of data is the coefficient of (variation, correlation).
  - (d) Calculation of Laspeyres and Paasche indexes for the same data usually yields different results because of the difference in (quantities, prices) used.
  - (e) The trend increment is the change in trend for a unit change in (X, Y).
  - (f) In surveys, (error, bias) is introduced because not everyone will respond.
  - (g) The seasonal index is used to (seasonalize, deseasonalize) a forecast made using the trend equation.
  - (h) One characteristic of the Paasche method of computing a price index is that this method makes it relatively (easy, difficult) to compare the indices of two different periods.
  - (i) The Consumer Price Index may be used to (inflate, deflate) time series data to allow year-to-year comparisons in constant value dollars.
  - (j) Time series analysis is used to detect patterns of (past, future) change in economic variables.

Q.2 The manufacturer of a well-known dishwashing detergent wants to be sure that the net weight of detergent per box is 1,800 grams. The manufacturer knows that under-filling leads to customer dissatisfaction and loss of sales, whereas over-filling directly reduces contribution margins. A random sample of 25 boxes is taken and the mean and variance are calculated as 1810.0 and 256.0 grams respectively. Assume the population of net weight per box is normally distributed.

#### **REQUIRED:**

- (3) (a) Is a one-tailed or a two-tailed test of significance appropriate? Explain why. State the null and alternate hypotheses.
- (7) (b) From the sample evidence, would you conclude that the net weight requirement of 1,800 grams is supported? Explain why. Use  $\alpha = 0.01$ .
- Q.3 Lucky Strike Petroleum Ltd. is drilling for oil on two independent sites. On the basis of geological information, the probability of a successful well at Site 1 is estimated to be 0.25, and at Site 2, 0.45. (Thus,  $P(S_1) = 0.25$ ,  $P(S_2) = 0.45$ .)

# **REQUIRED:**

- (4) (a) What is the probability neither site will produce a successful well?
- (4) (b) What is the probability only one site will produce a successful well?
- (2) (c) What is the probability both sites will produce successful wells?
- Q.4 A land developer needs to decide on which of two parcels of land to bid for development. The developer assesses the chance of success on bids to be 60% for parcel A and 80% for parcel B. Development of either parcel would take two years, at which time parcel A is expected to turn a profit of \$225,000. On a parcel adjacent to parcel B, a large department store chain has applied for approval to build a department store. If the department store application is approved, parcel B would turn a \$300,000 profit, but if it is not approved, parcel B would turn only a \$100,000 profit. The developer has assessed the probability that the department store will get approval to be 0.50.

# **REQUIRED:**

- (6) (a) Construct the decision tree for the land developer's problem.
- (4) (b) Calculate the expected profits for each alternative. On which parcel should the developer place a bid? Explain why.

Q.5 Braemore Trust would like to know how house sales are affected by interest rates. Mortgage interest rates and the corresponding number of house sales for seven randomly selected months are given below:

nterest Rate (%)	Number of House Sales
14	23
13	38
11	45
12	16
16	36
13	39
12	41

The accountant for the trust company has calculated the following values:  $\Sigma XY = 3078$ ,  $\Sigma X^2 = 1199$ ,  $\Sigma Y^2 = 8752$ .

# REQUIRED:

- (7) (a) Calculate the least-squares regression line.
- (5) (b) What percentage of the variation in the number of houses sold is explained by the regression line?
- (3) (c) If the mortgage interest rate is currently 13.5%, predict the number of house sales for this month. Do you feel this is a valid prediction? Explain why.
- Q.6 You wish to purchase plastic bags to package electronic components and you want to be sure that no more than 1% have a breaking strength below 35 Kpa. A random sample of 36 bags provided by a supplier was tested, with the following results:

$$\overline{X} = 41.50 \text{ Kpa}, \ \hat{\sigma} = 3.30 \text{ Kpa}.$$

The supplier claims the breaking strength for the bags is a normally distributed population with a mean breaking strength of 42.26 Kpa..

#### REOUIRED:

- (5) (a) Based on the sample results, how many bags from a package of 1,000 bags would have a breaking strength below 35 Kpa? Should you purchase the bags from this supplier?
- (5) (b) What percentage of bags would have a breaking strength between 35 and 50 Kpa?
- (5) (c) What is the probability that a sample mean (n = 36) will be less than 41.50 Kpa?

15 Q.7 In conjunction with the annual audit of Condor Resources, the chief accountant made note of the time it took to audit 20 account balances. The audit times, in minutes, are as follows:

33	22	37	48
28	47	15	34
43	49	34	10
29	39	19	25
15	24	43	34

#### REQUIRED:

- (5) (a) Determine the arithmetic mean, median and mode for these audit times.
- (6) (b) Construct a relative frequency distribution and a 'less than' cumulative relative frequency distribution of the data with intervals of 10 minutes, and with the lower limit of the first interval equal to 10.
- (4) (c) Construct a relative frequency polygon for these data.
- 15 Q.8 The manager of Northwest Trust Co. wishes to estimate the percentage of customers who had accounts with the company for less than one year.

#### REQUIRED:

- (6) (a) What sample size is required to estimate the true percentage of customers who had accounts for less than one year? The estimate must be within ± 5% of the true percentage with 99% confidence. Assume a normal distribution.
- (6) (b) Suppose a random sample of the size found in part (a) is taken, and the percentage of customers who had accounts for less than one year is found to be 35%. Calculate the 99% confidence interval for the true population percentage.
- (3) (c) Is this interval estimate within 5% of the true percentage with 99% confidence? Explain why.

END OF EXAMINATION

100

# **EQUATIONS AND FORMULAS**

$$\overline{x} = \frac{\sum x}{n}$$

G.M. = 
$$\sqrt[n]{(x_1)(x_2)(x_3)...(x_n)} - 1$$

$$\frac{Q_3-Q_1}{2}$$

$$\hat{\sigma} = \sqrt{\frac{\sum (x - \overline{x})^2}{n - 1}}$$

$$u = np$$

$$Z = \frac{x - u}{\sigma}$$

$$\hat{\sigma}_{\overline{X}} = \sqrt{\frac{\hat{\sigma}}{n}}$$

$$\hat{\sigma}_{\overline{p}} = \sqrt{\frac{\overline{p}\overline{q}}{n}}$$

$$\hat{Y} = a + bX$$

$$a = \overline{Y} - b\overline{X}$$

$$r^2 \; = \; \frac{a \underline{\Sigma} \, Y \; + \; b \underline{\Sigma} \, X \, Y \; - \; n \, \overline{Y}^{\, 2}}{\underline{\Sigma} \, Y^2 \; - \; n \, \overline{Y}^{\, 2}} \, \label{eq:r2}$$

$$b = \frac{\sum xY}{\sum x^2}$$

$$r^2 = \frac{a\Sigma Y + b\Sigma xY - n\overline{Y}^2}{\Sigma Y^2 - n\overline{Y}^2}$$

$$S_e = \sqrt{\frac{\Sigma (Y - \hat{Y})^2}{n - 2}}$$

$$Z = \frac{x/n - p}{\sqrt{p(1-p)/n}}$$

$$\overline{X}_{\omega} = \frac{\sum (w \times x)}{\sum w}$$

$$\frac{\hat{\sigma}}{\overline{x}}$$
 (100)

$$P(r;n) = \frac{n!}{r!(n-r)!} p_r q_{n-r}$$

$$\sigma = \sqrt{npq}$$

$$Z = \frac{\overline{x} - u}{\sigma_{\overline{x}}}$$

$$u_{\overline{p}} = p$$

$$\sqrt{\frac{N-n}{N-1}}$$

$$b = \frac{\sum XY - n\overline{X}\overline{Y}}{\sum X^2 - n\overline{X}^2}.$$

$$S_e = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{n-2}}$$

$$\hat{Y} = a + bx$$

$$a = \bar{Y}$$

$$r^2 = 1 - \frac{\Sigma (Y - \hat{Y})^2}{\Sigma (Y - \overline{Y})^2}$$

$$S_e = \sqrt{\frac{\Sigma Y^2 - a\Sigma Y - b\Sigma xY}{n-2}}$$

$$t = \frac{\overline{x} - u}{s / \sqrt{n}}$$

$$\mu = \frac{\sum x}{N}$$

$$\sigma^2 = \frac{\sum (x - \mu)^2}{N}$$

$$s^2 = \frac{\sum (x - \bar{x})^2}{n - 1}$$

$$\sigma_{\overline{x}} = \frac{\sigma}{\sqrt{n}}$$

$$\sigma_{\widetilde{p}} = \sqrt{\frac{pq}{n}}$$

$$\sigma = \sqrt{\sigma^2} = \sqrt{\frac{\sum (x - \mu)^2}{N}}$$

$$s = \sqrt{s^2} = \sqrt{\frac{\sum (x - \overline{x})^2}{n - 1}}$$

$$b = \frac{Y_2 - Y_1}{X_2 - X_1}$$

$$P(B|A) = \frac{P(BA)}{P(A)}$$

$$P(A \mid B) = \frac{P(AB)}{P(B)}$$

$$P(AB) = P(A | B) \times P(B)$$

$$P(A \text{ or } B) = P(A) + P(B)$$

$$P(AB) = P(A) \times P(B)$$

$$P(BA) = P(B \mid A) \times P(A)$$

$$P(A \text{ or } B) = P(A) + P(B) - P(AB)$$

Laspeyres index = 
$$\frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

Paasche index = 
$$\frac{\Sigma P_1 Q_1}{\Sigma P_0 Q_1} \times 100$$

Weighted aggregates price index = 
$$\frac{\sum P_1 Q}{\sum P_0 Q} \times 100$$

Unweighted aggregates quantity index = 
$$\frac{\Sigma Q_1}{\Sigma Q_0} \times 100$$

$$P(B|A)$$
 = the probability of event B, given that event A has happened

Median = the 
$$\left(\frac{n+1}{2}\right)$$
 th item in a data array where:  $n =$  the number of items in the data array

$$Range = \frac{Value \text{ of highest}}{observation} - \frac{Value \text{ of lowest}}{observation}$$

$$P(A)$$
 = the probability of event A happening

$$P(A \text{ or } B) = \text{the probability of } either A \text{ or } B \text{ happening}$$

Interquartile range = 
$$Q_3 - Q_1$$

Variation of the Y values around their own mean 
$$= \Sigma (Y - \overline{Y})^2$$

Variation of the Y values around the regression line = 
$$\Sigma (Y - \hat{Y})^2$$

Class mark = 
$$\frac{\text{Stated lower limit} + \text{Stated upper limit}}{2}$$

$$Class mark = \frac{Stated lower limit + Stated lower limit of the next class}{2}$$

TABLE 1 Standard Normal Probability Distribution

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.0	.0398	.0040	.0478	.0120	.0557	.0596	.0636	.0675	.0319	.0339
0.1	.0398	.0436	.0478	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.2	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.3	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.4	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.7	.2881	.2910	.2042	.2967	.2704	.3023	.3051	.3078	.3106	.2032
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3133
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3334	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	
1.4	.4192	.4207	.4222	.4236	.4251	.4265				.4177
1.5	.4332	.4345	.4222	.4370	.4382	.4265	.4279	.4292	.4306	.4319
1.6	.4332	.4343	.4337	.4370			.4406	.4418	.4429	.4441
1.7	.4554	.4463	.4573	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4534	.4564		.4562	.4591	.4599	.4608	.4616	.4625	.4633
1.9	.4041	.4049	.4656		.4671	.4678	.4686	.4693	.4699	.4706
			.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.3	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
	.4893	.4896	,4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4946
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

TABLE 2 t Distribution

Degrees of freedom	Area in both tails combined			
	.10	.05	.02	.01
1	6.314	12.706	31.821	63,657
2	2.920	4.303	6,965	9.925
3	2.353	3.182	4.541	5.841
4	2.132	2.776	3.747	4.604
5	2.015	2,571	3,365	4.032
6	1.943	2.447	3.143	3.707
7	1.895	2.365	2.998	3.499
8	1.860	2.306	2.896	3.355
9	1.833	2.262	2.821	3.250
10	1.812	2,228	2.764	3.169
11	1.796	2.201	2.718	3.106
12	1.782	2.179	2.681	3.055
13	1.771	2,160	2.650	3.012
14	1.761	2.145	2.624	2.977
15	1.753	2.131	2,602	2.947
16	1.746	2.120	2.583	2.921
17	1.740	2.110	2.567	2.898
18	1.734	2.101	2.552	2.878
19	1.729	2.093	2.539	2.861
20	1.725	2.086	2.528	2.845
21	1.721	2.080	2.518	2.831
22	1.717	2.074	2.508	
23	1.714	2.069	2.500	2.819
24	1.711	2.064	2.492	2.807
25	1.708	2.060	2.485	2.797
26	1.706	2.056	2.479	2.787
27	1.703	2.052	2.479	2.779
28	1.701	2.048	2.467	2.771
29	1.699	2.045		2.763
30	1.697	2.042	2.462	2.756
40	1.684	2.021	2.457	2.750
60	1.671	2.000	2.423	2.704
120	1.658	1.980	2.390	2.660
Normal Distribution	1.645	1.960	2,358	2.617
	1,045	1.900	2.326	2.576

# MANAGERIAL STATISTICS 203 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

There were many calculation errors, and students should be more careful when entering data into their calculators. Students seemed to have difficulty interpreting their numerical results.

#### Specific

- Q.1 Most often correct: (a), (b), (e).
  Most often incorrect: (g), (h), (i).
- $\mathbb{Q}.2$  (a) The most common errors were incorrect statements for the null and alternative hypotheses.
  - (b) Many students used Z instead of t, and some obtained incorrect values to t<sub>0.01</sub>. Many students interpreted their results incorrectly.
- Q.3 (a) Most students did not calculate this joint probability correctly.
  - (b) Most students did not recognize this part as the sum of two joint probabilities.
  - (c) Well done.
- Q.4 (a) Most students got the structure of the decision tree correct, but did not label it properly. The most common errors were omission of the profits at the ends of the branches, and the probability (.50) that the department store will not be approved.
  - (b) The most common error was not calculating the expected value (profits) at the nodes of the decision tree, which resulted in the incorrect conclusion for the question.
- Q.5 (a) The most common errors were the use of incorrect formulas for a and b in computing the determinants of the regression line.
  - (b) There were many calculation errors for  $r^2$ . Students did not seem to realize that  $r^2$  could not be >1, or a negative number.
  - (c) This part was reasonably well done, but some students did not realize that  $r^2$  is a measure of the validity of the prediction.

Continued...

- Q.6 Allowance was made in marking because of missing information in this question.
- Q.7 (a) This part was quite well done, although there were some errors in calculating the mean and median.
  - (b) Many students did not label the class intervals and the frequency distribution correctly.
  - (c) Labelling and incorrect scales were the major errors. Many students did not connect the lower and upper legs of the polygon to the horizontal axis.
- Q.8 (a) Students had most difficulty with this part. The most common problem was the use of the incorrect formula for calculating sample size.
  - (b) This part was quite well done, given a sample size was found for part (a).
  - (c) Many students answered "yes", but did not give reasons for their answers.

## **MANAGERIAL STATISTICS 203 EXAMINATION** June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

NOTE: 1 mark for each correct answer.

- 10 0.1 (a) shorter
  - (b) mean
  - (c) variation
  - (d) quantities
  - (e) X
  - (f) bias
  - (g) seasonalize
  - (h) difficult
  - (i) deflate
  - (j) past
- 10 0.2 Sources: Lesson Notes Chapter 7, Text Chapter 9.
  - (a) A two-tailed test of significance is appropriate because the manufacturer does not want to risk customer dissatisfaction by the under-filling, nor risk lost contribution margins by over-filling.
  - $H_0$ :  $\mu = 1,800$  grams. Null hypothesis. (1)
  - $H_1$ :  $\mu \neq 1,800$  grams. Alternative hypothesis. (1)
  - (b) t for two-tailed test,  $\alpha = 0.01$  and 24 degrees of freedom: (2) $t_{0.01} = \pm 2.797$
  - Calculate  $\hat{\sigma}_{\overline{\mathbf{v}}}$ : (2)

$$\hat{\sigma}_{\overline{X}} = \sqrt{\frac{256}{25}} = \frac{16}{5} = \frac{3.20}{5}$$

(2)Calculate t:

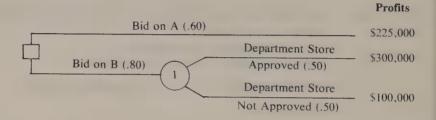
$$t = \frac{\overline{x} - \mu}{\hat{\sigma}_{\overline{x}}} = \frac{1810.0 - 1800}{3.20} = \frac{10.0}{3.20} = \frac{3.125}{3}$$

Because t>  $t_{0.01}$  =  $\pm$  2.797, the sample evidence shows that the net weight require-(1) ment of 1,800 grams is not supported.

- 10 Q.3 Sources: Lesson Notes Chapter 3, Text Chapters 5 and 6.
  - (4) (a)  $P(F_1) = 1 P(S_1) = 1 0.25 = 0.75$   $P(F_2) = 1 - P(S_2) = 1 - 0.45 = 0.55$  $P(F_1, F_2) = P(F_1) \times P(F_2) = 0.75 \times 0.55 = 0.4125$
  - (4) (b)  $P(S_1, F_2) = 0.25 \times 0.55 = 0.1375$  $P(F_1, S_2) = 0.75 \times 0.45 = \underbrace{0.3375}_{0.4750}$

Probability of only one successful well is 0.4750

- (2) (c)  $P(S_1, S_2) = 0.25 \times 0.45 = 0.1125$
- 10 Q.4 Sources: Lesson Notes Chapter 10, Text Chapters 6 and 16.
  - (6) (a) Decision tree:



- (b) Expected profits:
- (1) For bid on A:  $$225,000 \times .60 = $135,000$ 
  - For bid on B: Expected value at node 1:
- (1)  $$300,000 \times .5 + 100,000 \times .5 = $200,000$
- (1) Expected profits =  $$200,000 \times .80 = 160,000$
- (1) The developer should bid on parcel B.
- 15 Q.5 Sources: Lesson Notes Chapter 8, Text Chapter 11.
  (a) Given:  $\Sigma XY = 3078$ ,  $\Sigma X^2 = 1199$ ,  $\Sigma Y^2 = 8752$ 
  - Compute  $\overline{X}$  and  $\overline{Y}$ :
  - $(1) \overline{X} = 91/7 = 13.0$
  - $(1) \overline{Y} = 238/7 = 34.0$

(3) 
$$b = \frac{\sum XY - n\overline{X}\overline{Y}}{\sum X^2 - n\overline{X}^2} = \frac{3078 - 7(13.0)(34.0)}{1199 - 7(13.0)^2}$$
$$= \frac{3078 - 3094}{1199 - 1183} = \frac{-16}{16} = -\underline{1.0}$$

- (1)  $a = \overline{Y} b\overline{X} = 34.0 (-1.0)(13.0) \\ = 34.0 + 13.0 = 47.0$
- (1) The regression line is:  $\hat{Y} = 47.0 1.0x$

(b) Calculate r<sup>2</sup>:

(4) 
$$r^{2} = \frac{a\Sigma Y + b\Sigma XY - n\overline{Y}^{2}}{\Sigma Y^{2} - n\overline{Y}^{2}}$$

$$= \frac{47.0(238) - 1.0(3078) - 7(34.0)^{2}}{8752 - 7(34.0)^{2}}$$

$$= \frac{11186 - 3078 - 8092}{8752 - 8092}$$

$$= \frac{16}{660} = \frac{0.2424}{660}$$

- 2.4% of the variation in the number of houses sold is explained by the regression (1)line.

(c) Predict 
$$\hat{Y}$$
 for  $X = 13.5$ :  
 $\hat{Y} = 47.0 - 1.0(13.5) = 47.0 - 13.5 = 33.5$ 

- The prediction is not valid. Even though the value 13.5 is within the range of the (2)data, only a very low percentage of the variation is explained by the regression line.
- Sources: Lesson Notes Chapter 4, Text Chapter 6. 15 0.6Given: n = 36,  $\mu = 42.26$ ,  $\sigma = 3.30$

(2) (a) 
$$Z = \frac{X - \mu}{\hat{\sigma}} = \frac{35 - 42.26}{3.30} = \frac{-7.26}{3.30} = \frac{-2.20}{3.30}$$

(1) 
$$P(X < 35) = P(Z < -2.20) = .5000 - .4861 = 0.0139$$

$$(1) 1,000 (0.0139) = 13.9 \longrightarrow 14$$

(1)No, the bags should not be purchased from this supplier, because more than 1% have a breaking strength below 35 Kpa.

(1) (b) 
$$P(35 < X < \mu) = 0.4861$$
 from part (a).

(2) 
$$Z = \frac{50 - 42.26}{3.30} = \frac{7.74}{3.30} = 2.345$$

(1) 
$$P(0 < Z < 2.345) = \underline{0.4905}$$

(1) 
$$P(35 < X < 50) = 0.4861 + 0.4905 = 0.9766$$

(1) (c) 
$$\hat{\sigma}_{\overline{\chi}} = \frac{\hat{\sigma}}{\sqrt{n}} = \frac{3.30}{\sqrt{36}} = \frac{3.30}{6} = \underline{0.55}$$

(2) 
$$Z = \frac{\mu - 41.50}{\hat{\sigma}_{\bar{\chi}}} = \frac{42.26 - 41.50}{0.55} = \frac{0.76}{0.55} = 1.38$$

(1) 
$$P(Z < 1.38) = 0.5000 - 0.4162 = 0.0838$$

(1) 
$$P(\overline{X} < 41.50) = 0.0838$$

- 15 Q.7 Sources: Lesson Notes Chapters 1 and 2, Text Chapters 2 and 4.
  - (1) (a) Data array:

10	24	34	43
15	25	34	43
15	28	34	47
19	29	37	48
22	33	39	49

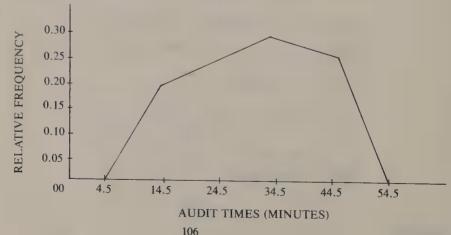
- (2)  $\overline{x} = \Sigma X/n = 628/20 = 31.4 \text{ minutes}$
- (1) Median =  $\frac{33 + 34}{2}$  = 33.5 minutes
- (1) Mode = 34 minutes
  - (b) Relative frequency distribution:

(4) Audit Times (minutes) Frequency **Relative Frequency** 10 - 19 0.20 20 - 29 0.25 30 - 39 6 0.30 40 - 49 5 0.25 20 1.00

(2) 'Less than' cumulative relative frequency distribution:

Audit Times (minutes) 'Less than'	Cumulative Relative Frequency
10	0.00
20	0.20
30	0.45
40	0.75
50	1.00

(4) (c) Relative Frequency Polygon:



- 15 Q.8 Sources: Lesson Notes Chapters 5 and 6, Text Chapters 7 and 8.
  - (6) (a) In the absence of knowledge about the true percentage, use p = 0.50.

Sample size: for 99% C.I., Z = 2.575

$$Z = p - \bar{p} = \frac{0.05}{\widehat{\sigma}_{\bar{p}}} = \sqrt{\frac{(0.5)(0.5)}{n}} = 2.575$$

$$\sqrt{n} = \frac{2.575 (0.5)}{0.05} = \frac{1.2875}{0.05} = 25.75$$

$$n = (25.75)^2 = 663.0625 \longrightarrow 664$$

A sample of 664 is required.

(b) Recalculate standard error using the sample information.

(2) 
$$\hat{\sigma}_{\overline{p}} = \sqrt{\frac{(0.35)(0.65)}{664}} = \sqrt{0.0003426} = 0.01851$$

- (1) For 99% C.I., Z = 2.575
- (2) C.I. =  $\vec{p} \pm Z \hat{\sigma}_{\vec{p}}$ = 0.35 \pm 2.575 (0.01851) = 0.35 \pm 0.048

99% confidence interval:

- (1) 0.302
- (3) (c) Yes, because 2.575  $\hat{\sigma}_{\bar{p}}$  is less than 5%, and 99% of confidence intervals for n = 664 will contain the true population percentage p.

END OF SOLUTIONS

100

## ACCOUNTING 211 EXAMINATION December, 1984

Marks Time: 3 Hours

#### **Instructions:**

- 1. Read carefully and follow precisely the instructions on the front of the examination booklet that relate to the way in which your answers are to be written. You must start each question on top of a new page (on the right side) and keep the calculations with the questions they pertain to (on the left side).
- 2. Number all pages you use and on page 1 provide a table of contents, eg., Q.4 page 6.
- 3. Read the questions carefully and answer what is asked.
- 4. Two tables are attached.
- 5. No narratives are required for journal entries.
- 16 Q.1 The following cases are unrelated.
  - (4) (a) Temporary investments are distinguished from long-term investments for accounting purposes on the basis of two criteria. What are the two criteria?
  - (4) (b) Gibson Company's temporary investment portfolio which is appropriately included in current assets is as follows:

On December 31, 1984

	Cost	Market	Gain (Loss)
Anchor Co. Ltd.	\$10,000	\$10,000	\$ —
Keller Inc.	20,000	15,000	(5,000)
Peltier Co. Inc.	_25,000	26,000	1,000
	\$55,000	\$51,000	\$(4,000)
On December 31, 198	33		
			Unrealized
	Cost	Market	Gain (Loss)
Anchor Co. Ltd.	\$10,000	\$12,000	\$2,000
Keller Inc.	30,000	26,000	(4,000)
Peltier Co. Inc.	_20,000	24,000	4,000
	\$60,000	\$62,000	\$2,000

#### REQUIRED:

Ignoring income taxes, what amount should be reported as an unrealized gain or loss (indicate which) in Gibson Company's 1984 income statement? Why?

108 Continued...

Unrealized

(4) (c) Yorkshire Corporation holds the following shares in its temporary investment portfolio:

	Shares	Cost per Share	December 31, 1984 Market per Share
A Stock	500	\$15	\$12
B Stock	1,000	10	15
C Stock	750	12	15

#### REQUIRED:

The December 31, 1984 balance sheet of Yorkshire Corporation would report temporary investments at what amount? Why?

- (4) (d) Marketable securities held to finance future additions to the plant should be classified on a balance sheet as which of the following? Why?
  - i) current assets
  - ii) plant and equipment
  - iii) intangible assets
  - iv) long-term investments
- 12 Q.2 Peter Company is considering acquiring Shuter Company. Financial data for Shuter Company on December 31, 19X6 is as follows:

	Dr/(Cr)	Fair Value
Current assets	\$ 10,000	\$ 10,000
Equipment - net	50,000	60,000
Patents	0	5,000
Liabilities	(15,000)	(15,000)
Capital stock		
1,000 shares	(5,000)	
Retained earnings	(32,000)	
Sales	(40,000)	
Costs and expenses	30,000	
Dividends declared in 19X6	2,000	
	\$ 0	

The future annual earnings are estimated at 10% above 19X6 earnings.

Normal rate of return on identifiable net assets at fair value for the industry is determined at 10%.

- (6) (a) Determine the value of goodwill under the following situations:
  - i) Goodwill is estimated to be equal to the present value of future annual excess earnings for a period of five years discounted at 12%.
  - ii) Goodwill is estimated to be equal to future annual excess earnings capitalized at 20%.

- (2) (b) Determine the book value per share at December 31, 19X6.
- (4) (c) Determine the fair value per share at December 31, 19X6 under situations (a) (i) and (ii) above.
- Q.3 When examining the accounts of Single Account Company you focused on an account called "receivables" which had a balance of \$133,000. Your analysis of the details of this account revealed the following:

Accounts receivable - customers	\$ 60,000
Loans receivable - officers	25,000
Prepayments made to suppliers for orders	4,000
Expense advances to salespersons	2,000
Common stock subscriptions receivable	82,000
Overpayments of accounts payable	1,000
Overpayments of accounts by customers	(3,000)
Accounts payable - Purchases of merchandise	(38,000)
Net receivables	\$133,000

#### REQUIRED:

- (5) (a) Give the necessary journal entry(s) to reflect correct treatment of the above items.
- (4) (b) Present the partial balance sheet to show how the above items would be reported.
- Q.4 The bookkeeper to Beaver Canada Inc. is unable to record entries in respect of the following transactions in 19X7. The company's year-end is December 31, 19X7.

#### REQUIRED:

Prepare the necessary journal entries to record the following transactions and briefly give reasons to justify your entry.

- (4) (a) December 31, 19X7 purchased equipment with a list price of \$14,000, by making a down payment of \$4,000, and the balance payable of \$5,000 on December 31, 19X8 and \$5,000 on December 31, 19X9. The company's borrowing interest rate is 10%.
- (3) (b) July 1, 19X7 acquired land and building for a lump sum payment of \$100,000, with a view to building a new plant. At the time of acquisition the appraised value of the land was \$120,000 and the building was \$5,000. The old building was demolished at a cost of \$2,000 cash, and \$1,000 cash was recovered through the sale of salvaged building material.
- (3) (c) December 31, 19X7 exchanged an old truck for a drilling machine:

Purchased truck on January 1, 19X1 \$8,000

Accumulated depreciation on the truck as of January 1, 19X7, on a straight-line basis

\$4,800

Fair value of the drilling machine

\$2,800

14 Q.5 Beta Company buys and sells product Z, for which the following data is available for the year 19X7.

Purchases:	Units	Unit Cost
January	200	\$ 60.00
February	100	60.50
March	900	61.00
April	200	61.50
November	200	62.00
December	100	63.00
Sales:		
January	100	
February	200	
May	400	
June	200	
November	100	
December	400	
Sales returns	100	
Inventory on hand:		
January 1, 19X7	210	59.00
December 31, 19X7	600	

- (10) (a) Determine the inventory value at December 31, 19X7 under the periodic inventory system using:
  - (3) i) FIFO Method;
  - (3) ii) LIFO Method;
  - (4) iii) Weighted-average Method.
- (2) (b) Which method will produce the highest net income? Why?
- (2) (c) Determine the cost of units lost based on the weighted-average method.

12 Q.6 On January 1, 1984, Investor Ltd. acquired 40% of outstanding common shares of Investee Ltd. for \$8,000 cash. The following additional data is available:

## Investee Ltd. Balance Sheet As at January 1, 1984

	,	Fair Value
Current Assets Tangible Fixed Assets	\$ 4,000 8,000 \$12,000	\$ 4,000 13,000
Current Liabilities Common shares - no par,	\$ 2,000	\$ 2,000
1,000 outstanding shares Retained Earnings	4,000 6,000 \$12,000	

Net income for 1984 for Investee Ltd. was \$2,000. Investee Ltd. declared and paid a cash dividend of \$1,000 during the year.

Goodwill arising on acquisition is to be amortized over the maximum period allowed according to the accounting standards in Canada.

Tangible fixed assets are to be amortized over ten years.

- (2) (a) Determine the amount of goodwill paid by Investor Ltd. on January 1, 1984 on the acquisition of 40% of the common shares of Investee Ltd.
- (6) (b) Under the equity method:
  - i) Determine Investor Ltd.'s equity in the 1984 earnings of Investee Ltd.
  - ii) Determine the account balance at December 31, 1984 in the investment in Investee Ltd. that would appear in the books of Investor Ltd.
- (2) (c) Determine the investment income for 1984 and investment account balance at December 31, 1984 that would appear in the books of Investor Ltd. under the cost method.
- (2) (d) Determine the book value and fair value per share of Investee Ltd. at January 1, 1984.

- 16 Q.7 The following cases are unrelated.
  - (5) (a) On January 2, 1978, Sloppy Corporation purchased an operational asset that cost \$24,000. At the date of the purchase, the full amount was debited to expense. The item was discovered during an audit of the books in 1984 (prior to closing the books). The operational asset has an estimated 10 year service life and no residual value. The corporation uses straight-line depreciation for similar assets.

#### REQUIRED:

Give the necessary journal entry(s) with regard to the asset, as of December 31, 1984, the corporation's year-end.

(2) (b) On January 2, 1978, Cakebread Company purchased an operational asset that cost \$24,000. At the date of purchase, the full amount was debited to the asset account "plant and equipment", and was depreciated on a straight-line basis over a 10 year service-life, with no residual value. During 1984, an engineering study was conducted which concluded that the operational asset would have a 14 year (total) rather than the originally assumed 10 year service-life.

#### **REQUIRED:**

Give the necessary journal entry(s) with regard to the asset, as of December 31, 1984, the company's year-end.

(4) (c) On January 2, 1982, Extreme Corporation purchased an operational asset at a cost of \$40,000. At the date of the purchase, the full amount was debited to the "plant and equipment" account. The asset was being depreciated over a 10 year life, with no residual value, using the straight-line method. During 1984, an engineering study was conducted which concluded that use of the diminishing balance method at twice the straight-line rate would provide a better matching of revenues and expenses. Consequently, the corporation decided to change to the diminishing balance method. The estimated useful life was not to be changed.

#### REOUIRED:

Give the necessary journal entry(s) with regard to the asset, as of December 31, 1984, the corporation's year-end.

(5) (d) Blue Jay Corporation failed to make the following adjustments (which are material) at the end of 1982 and 1983:

1982 Accrued Wages \$2,500

1983 Prepaid insurance 1,000 (debited to insurance expense when paid)

Uncollectible accounts not written-off, \$800 (the corporation uses the allowance method with bad debt expense based on a percentage of sales).

- Using the above information, determine the net effect on the 1983 reported net income.
- ii) Assuming the errors were discovered in 1984, what would the correcting entry(s) be?

Q.8 On June 30, 1981, Jason Corporation purchased \$100,000 par value 8% bonds as a long-term investment. The total cash outlay for the bonds was \$86,000. The 10 year bonds were dated December 31, 1978, with interest payable annually.

#### REOUIRED:

- (8) i) Prepare the journal entries to account for the investment in the bonds for the years ending December 31, 1981, 1982 and 1983. (Hint: Use straight-line amortization method.)
- (3) ii) Assuming Jason Corporation debited the bond investment account for \$86,000 and recognized interest revenue on the cash basis, that is, \$8,000 in each of the years 1981, 1982 and 1983, prepare the correcting journal entry(s) with regard to the investment in bonds as of January 1, 1984.

100

**END OF EXAMINATION** 

Present Value of \$ 1

Periods	9%	10%	11%	12%	15%	18%	20%
1	.91743	.90909	.90090	.89286	.86957	.84746	.83333
2	.84168	.82645	.81162	.79719	.75614	.71818	.69444
3	.77218	.75131	.73119	.71178	.65752	.60863	.57870
4	.70843	.68301	.65873	.63552	.57175	.51579	.48225
5	.64993	.62092	.59345	.56743	.49718	.43711	.40188
6	.59627	.56447	.53464	.50663	.43233	.37043	.33490
7	.54703	.51316	.48166	.45235	.37594	.31393	.27908
8	.50187	.46651	.43393	.40388	.32690	.26604	.23257
9	.46043	.42410	.39092	.36061	.28426	.22546	.19381
10	.42241	.38554	.35218	.32197	.24718	.19106	.16151
11	.38753	.35049	.31728	.28748	.21494	.16192	.13459
12	.35553	.31863	.28584	.25668	.18691	.13722	.11216
13	.32618	.28966	.25751	.22917	.16253	.11629	.09346
14	.29925	.26333	.23199	.20462	.14133	.09855	.07.789
15	.27454	.23939	.20900	.18270	.12289	.08352	.06491
16	.25187	.21763	.18829	.16312	.10686	.07078	.05409
17	.23107	.19784	.16963	.14564	.09293	.05998	.04507
18	.21199	.17986	.15282	.13004	.08081	.05083	.03756
19	.19449	.16351	.13768	.11611	.07027	.04308	.03130
20	.17843	.14864	.12403	.10367	.06110	.03651	:02608
21	.16370	.13513	.11174	.09256	.05313	.03094	.02174
22	.15018	.12285	.10067	.08264	.04620	.02622	.01811
23	.13778	.11168	.09069	.07379	.04017	.02222	.01509
24	.12640	.10153	.08170	.06588	.03493	.01883	.01258
25	.11597	.09230	.07361	.05882	.03038	.01596	.01048

## Present Value of Annuity of \$ 1

Periodic	0.0/	400	440/	400/	450/	400/	0001
Rents (n)	9%	10%	11%	12%	15%	18%	20%
1	.91743	.90909	.90090	.89286	.86957	.84746	.83333
2	1.75911	1.73554	1.71252	1.69005	1.62571	1.56564	1.52778
3	2.53129	2.48685	2.44371	2.40183	2.28323	2.17427	2.10648
4	3.23972	3.16987	3.10245	3.03735	2.85498	2.69006	2.58873
5	3.88965	3.79079	3.69590	3.60478	3.35216	3.12717	2.99061
6	4.48592	4.35526	4.23054	4.11141	3.78448	3.49760	3.32551
7	5.03295	4.86842	4.71220	4.56376	4.16042	3.81153	3.60459
8	5.53482	5.33493	5.14612	4.96764	4.48732	4.07757	3.83716
9	5.99525	5.75902	5.53705	5.32825	4.77158	4.30302	4.03097
10	6.41766	6.14457	5.88923	5.65022	5.01877	4.49409	4.19247
11	6.80519	6.49506	6.20652	5.93770	5.23371	4.65601	4.32706
12	7.16073	6.81369	6.49236	6.19437	5.42062	4.79322	4.43922
13	7.48690	7.10336	6.74987	6.42355	5.58315	4.90951	4.53268
14	7.78615	7.36669	6.98187	6.62817	5.72448	5.00806	4.61057
15	8.06069	7.60608	7.19087	6.81086	5.84737	5.09158	4.67547
16	8.31256	7.82371	7.37916	6.97399	5.95423	5.16235	4.72956
17	8.54363	8.02155	7.54879	7.11963	6.04716	5.22233	4.77463
18	8.75563	8.20141	7.70162	7.24967	6.12797	5.27316	4.81219
19	8.95011	8.36492	7.83929	7.36578	6.19823	5.31624	4.84350
20	9.12855	8.51356	7.96333	7.46944	6.25933	5.35275	4.86958
21	9.29224	8.64869	8.07507	7.56200	6.31246	5.38368	4.89132
22	9.44243	8.77154	8.17574	7.64465	6.35866	5.40990	4.90943
23	9.58021	8.88322	5.26643	7.71843	6.39884	5.43212	4.92453
24	9.70661	8.98474	8.34814	7.78432	6.43377	5.45095	4.93710
25	9.82258	9.07704	8.42174	7.84314	6.46415	5.46691	4.94759

# ACCOUNTING 211 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

Five of the questions were well answered. However, on Questions 2, 6 and 8, students' general performance indicated inability to apply accounting knowledge to situations which were other than procedural. The range of total marks was wider than usual, 90 percentage points separating the highest and lowest students.

#### Specific

- Q.1 Most students had little difficulty in answering this question.

  Marks were lost for not being specific in answering part (a),
  apparently guessing at an answer to part (d), and improper application of concepts to parts (b) and (c).
- Q.2 Many students had difficulty in answering this question correctly.

  There was confusion over the basic approach for determining fair value for goodwill and establishing fair value for an entity.
- Q.3 Most did well on this question. A few lost marks because they gave original entries rather than correcting entries in part (a). A common error was to "net" the "accounts receivable" and "accounts payable".
- Q.4 Generally well answered.
- Q.5 Generally well answered, but some responses used the perpetual inventory system (instead of the periodic system, as directed) and consequently lost marks and time.
- Q.6 Poorly answered by a significant number of students. The apparent difficulty was in determining investment income and investment account balance under the equity method.
- Q.7 Parts (a), (b) and (c) were well answered, marks being lost on part (a) for the credit part of the entry. Part (d)(i) was very poorly answered; (d)(ii) calculations were correct, but most candidates used a variety of accounts rather than the correct account, "retained earnings".
- Q.8

  i) There were many incorrect answers to this question. Most students did not calculate the interest receivable at time of purchase of bonds. For entries 2, 3 and 4, not only were the amounts wrong, but wrong accounts were debited or credited. Many students did not calculate the correct cash amount, which was fundamental to the question.
  - ii) Few students attempted this part, but several of them obtained full marks for it.

## ACCOUNTING 211 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks					1	Time: 3 Hours
16	Q.1 (4)	(a)	To qualify for classification as a tempor readily marketable and (ii) the intention of asset into cash within one year (or the open content of the	of managemen	it must be t	o convert the
	(4)	(b)	An unrealized loss of \$4,000 should be rement. Temporary investments are norm market, based on the total portfolio.			
	(4)	(c)	Temporary investments should be report market is higher.	ted at \$26,500	. Reported	at cost when
	(4)	(d)	The marketable securities should be clabased on management intent.	assified as (iv)	) long-term	investments,
12	Q.2 (6)	(a)	Estimated annual earnings 10,000 × 110% = Normal earnings 60,000 × 10% =		,000 ,00 <u>0</u>	
			Excess earnings	\$ 5	,000	
			i) Goodwill 5,000 × 3.6048 = ii) Goodwill 5,000 / 20% =		,024 ,000	
	(2)	(b)	Book value per share - \$45.00			
	(4)	(c)	Fair value per share: Fair value of identifable net assets Goodwill	(i) \$60,000 18,024 \$78,024	(ii) \$60,000 25,000 \$85,000	
			Fair value per share	\$78.02	\$85.00	
9	Q.3 (5)	(a)	Accounts receivable Loans receivable - officers Prepayments to creditors Expense advances to salespersons Common stock subscriptions receivable	\$	60,000* 25,000 5,000 2,000 82,000	
			Accounts payable Accounts receivable Advances from customers (over payable)	ment)	02,000	\$ 38,000 133,000 3,000
			117			Continued

## (4) (b) Current Assets:

Accounts receivable - trade	\$ 60,000*
Special receivables:	
Loans receivable - officers*	25,000
Prepayments to creditors	5,000
Expense advances to salespersons	2,000
Common stock subscriptions receivable	82,000

#### Current Liabilities:

Accounts payable - trade	\$ 38,000
Customer's credit balances	3,000

<sup>\*</sup>NOTE: Accept accounts receivable as a net amount of \$57,000.

10 Q.4

(3) (a) Equipment \$12,677.68

Cash
Liability \$8,677.68

OR:

Equipment \$12,677.68

Discount 1,322.32

Cash \$4,000.00

Liability 10,000.00

(1) Equipment cost is equal to cash equivalent in the transaction, which is the present value of future payments discounted at 10%.

(3)	(b) Land (100,000 + 1,000)	\$101,000
	(2) Cash	\$101,000
	(100,000 + 2,000 - 1,000)	

(1) Intent is to build a new plant — all costs less salvaged material should be associated with the cost of land.

(3)	(c) Truck cost Accumulated depreciation –		\$ 8,000
	6  years - 4,800 + 7 th year + 800 =		(5,600)
	Net book value Fair value of drilling machine		2,400 2,800
	Gain		400
	(2) Depreciation expense Accumulated depreciation	\$ 800	\$ 800
	Drilling machine Truck	2,800	0.000
	Accumulated Depreciation-Truck	5,600	8,000
	Gain		400

(1) Recognize gain on exchange of assets.

NOTE: 1 compound entry is acceptable.

14 Q.5

(3)

i) FIFO - inventory value at December 31, 19X7
100 units at \$63.00 \$ 6,300
200 units at 62.00 12,400
200 units at 61.50 12,300
100 units at 61.00 6,100
\$ 37,100

(3) ii) LIFO
210 units at \$59.00 \$ 12,390
200 units at 60.00 12,000
100 units at 60.50 6,050
90 units at 61.00 5,490
\$ 35,930

## (4) iii) Weighted-average -

	Units	Unit Cost	Extension
January 1, 19X7	210	59.00	\$ 12,390
January	200	60.00	12,000
February	100	60.50	6,050
March	900	61.00	54,900
April	200	61.50	12,300
November	200	62.00	12,400
December	100	63.00	6,300
	1,910	60.91	\$116,340

 $600 \times 60.91 = \$36,546$ 

- (2) (b) FIFO will produce the highest income
   highest ending inventory dollar value.
- (2) (c) Units lost 1,910 (1,400 sold 100 returned + ending inventory = 10)

  Cost of units lost = \$60.91 × 10 = \$609.10.

12 Q.6

 $(2) \qquad \text{(a) Goodwill amount} \\ & \text{Acquisition cost} \\ & 40\% \text{ fair value of identifiable} \\ & \text{net assets acquired:} \\ & 40\% \times 15,000 \\ & \text{Goodwill} \\ \end{cases} \underbrace{\begin{array}{c} \$8,000 \\ \\ 6,000 \\ \\ \$2,000 \\ \end{array}}$ 

	(3)	(b) i) Equity - income  40% reported income -  40% × 2,000  Amortization of goodwill  2,000 / 40 years  Amortized fair value differential  tangible fixed asset 40%  (13,000 - 8,000) = 2,000/10 years	\$ 800 (50) (200) \$ 550	
	(3)	ii) Investment account balance Acquisition cost Equity income 40% Dividend — 40% × 1,000	\$8,000 550 (400) \$8,150	
		Proof: 40% Investee's equity + unamortized di 40% (10,000 + 2,000 income - 1,000 dividend) + 200 fixed assets) = \$8,150		
	(2)	(c) Cost method: Income Investment account balance	\$ 400 8,000	
	(2)	(d) Per share data at January 1, 19X4  Book value \$10,000 / 1,000 =  Fair value 8,000 / 400 =	\$10 \$20	
16	Q.7 (5)	(a) Plant and equipment Retained earnings-correction of error Accumulated depreciation	\$24,000	\$ 9,600 14,400
		Depreciation expense Accumulated depreciation	2,400	2,400
	(2)	(b) Depreciation expense Accumulated depreciation	1,200	1,200
	(4)	(c) Retained earnings-change in policy Accumulated depreciation	6,400	6,400
		Depreciation expense Accumulated depreciation	5,120	5,120
	(5)	(d) i) Net income for 1983 was understated by \$	3,500 (\$2,500 + \$	51,000)
		ii) Prepaid insurance Allowance for doubtful accounts Accounts receivable Retained earnings - error correction	\$1,000 800	\$ 800 1,000
		120		

11 Q.8

(8)	i)	June 30, 1981 Investment in bonds Interest receivable Cash	\$82,000 4,000	\$86,000
		December 31, 1981 Investment in bonds Cash Interest receivable Interest revenue	1,200 8,000	4,000 5,200
		December 31, 1982 Investment in bonds Cash Interest revenue	2,400 8,000	10,400
		December 31, 1983 Investment in bonds Cash Interest revenue	2,400 8,000	10,400
(3)	ii)	NOTE: 2 marks for each entry.  Investment in bonds Retained earnings - error correction	\$ 2,000	2 000

100 END OF SOLUTIONS

## ACCOUNTING 211 EXAMINATION March, 1985

Marks Time: 3 Hours

#### Instructions:

- 1. Read carefully and follow precisely the instructions on the front of the examination booklet that relate to the way in which your answers are to be written. You must start each question on the top of a new page (on the right side) and keep the calculations with the question they pertain to (on the left side).
- 2. Number all pages you use and on page 1 provide a table of contents, e.g., Q.4 page 6.
- 3. Read the questions carefully and answer what is asked.
- 4. No narratives are required for journal entries.
- 5. Two tables are attached.
- Q.1 (a) Explain how the following items should be presented or treated in financial statements. Assume that the financial statements affected are presented for comparative purposes. Indicate whether the treatment is prospective or retroactive.
  - (3) i) Change in accounting policy.
  - (3) ii) Change in accounting estimate.
  - (3) iii) Correction of errors in prior periods.
  - (3) (b) Give an example of an item for each of (i), (ii) and (iii) above.
- Q.2 At the end of the annual accounting period, the inventory records of Scott Company reflected the following:

	1982	1983	1984
Ending inventory at FIFO	\$35,000	\$33,000	\$39,000
Ending inventory at LIFO	32,000	35,000	34 000

The company uses FIFO for internal reporting purposes and LIFO for external reporting purposes. The company uses a perpetual inventory system.

- (6) (a) Give appropriate journal entry (entries) for each year to convert from FIFO to LIFO method for external reporting purposes.
- (3) (b) Indicate how the inventories should be shown on the 1982, 1983 and 1984 comparative balance sheet, for external reporting purposes.

Q.3 A shareholder of Northern Mines Corporation comes to you for advice with regard to a statement made on depletion charges in the "Notes to Financial Statements". The statement reads:

Depletion of mines is computed on the basis of an overall unit rate applied to the kilograms of ore sold from mining operations. The Corporation makes no representation that the annual amount represents the actual depletion of natural resources for the year's operations, or that it (depletion) represents anything other than a general provision for the amortization of the remaining book value of mines.

Specifically, the shareholder asks:

- (3) (a) Is the depletion amount reported on the income statement meaningless?
- (3) (b) Are the Corporation's mines becoming more or less valuable compared to their original cost?
- (3) (c) What is the significance of the book value of the Corporation's mines?

#### REQUIRED:

Respond briefly to each of the three questions asked by the shareholder.

Q.4 On January 4, 198A, L Company purchased 20% of the 10,000 outstanding common shares of Corporation for \$30 per share. At that date, the following data were available for B Corporation:

	Book Value	Market Value
Assets not subject to depreciation Assets subject to depreciation with remaining	\$100,000	\$100,000
life of 10 years	220,000	240,000
	\$320,000	
Liabilities	\$ 70,000	\$ 70,000
Common stock	150,000	
Retained earnings	100,000	
	\$320,000	

At the end of 198A, B Corporation reported net income of \$30,000 and declared dividends of \$10,000 to be paid early in 198B. At the end of 198A, B Corporation's stock was quoted on the market at \$33 per share. Any goodwill should be amortized over a five-year period.

### REQUIRED:

- (a) Record the following transactions using the equity method:
- (2) i) Purchase of B Corporation's stock.
- (2) ii) L Company's share of B Corporation's net income for 198A.
- (2) iii) L Company's share of B Corporation's 198A declared dividends.
- (2) iv) Depreciation expenses for 198A on implied increase in asset value.
- (2) v) Amortization for 198A of implied goodwill.
- (2) (b) Repeat the recording of the necessary entries as of the end of 198A on L Company's books with regard to the investment in B Corporation's stock using the cost method.
- (4) (c) Under what conditions would it be appropriate to use the equity method?
- Q.5 North Corporation has followed the practice of valuing all of its temporary investments in marketable securities as one portfolio at the lower of cost or market (LCM). At December 31, 1984 its account "Temporary Investments in Marketable Securities" had a balance of \$60,000, and the account "Allowance to Reduce Investments from Cost to Market" had balance of \$4,000. Analysis disclosed that on December 31, 1983 the facts relating to the securities were as follows:

Security	Cost	Market	Allowance Required
Lake Corporation bonds	\$20,000	\$18,500	\$1,500
Sea Corporation bonds	20,000	19,500	500
River Corporation bonds	20,000	21,000	0
Ocean Corporation bonds	20,000	18,000	2,000
	\$80,000		\$4,000

During 1984, North sold one-half of the Ocean bonds for \$9,400 plus accrued interest and one-half of the River bonds for \$10,750 plus accrued interest. The difference between the \$9,400 and the cost of \$10,000 on the Ocean bonds, and \$10,750 and the cost of \$10,000 on the River bonds was debited and credited respectively to the account "Gain or Loss on Disposal of Marketable Securities". The market price of the bonds on December 31, 1984 was:

Lake Corporation bonds	\$19,200
Sea Corporation bonds	20,100
River Corporation bonds	10,800
Ocean Corporation bonds	9,500

#### **REQUIRED:**

- (3) (a) What justification is there for the use of the LCM for valuing temporary investments in marketable securities?
- (4) (b) What criteria must the securities meet in order to be classified as temporary investments?
- (3) (c) Did North Corporation properly apply the LCM rule on December 31, 1983? Explain.
- (3) (d) Was the sale of the Ocean and River bonds properly recorded? Explain.
- (3) (e) What should the balance be in the allowance account after the proper adjusting entry is made on December 31, 1984?
- Q.6 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice AND briefly justify your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet along with your explanation. Select only one answer for each item. If more than one answer is given that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted.

### NOTE: 2 marks for each correct answer (including justification).

- (a) Prairie Company exchanged high volume inventory items that cost \$15,000 and normally sold for \$20,000, for new truck with a list price of \$21,000. The truck should be recorded on Prairie's books at:
  - i) \$15,000.
  - ii) \$20,000.
  - iii) \$21,000.
  - iv) \$20,500.
- (b) Good Deal Company received \$10,000 in cash and mused computer with a market value of \$90,000 from Harvest Corporation for Good Deal's existing computer having market value of \$100,000 and an undepreciated cost of \$80,000 on its books. How much gain should Good Deal recognize on this exchange, and at what amount should the acquired computer be recorded respectively?
  - i) Zero and \$70,000.
  - ii) \$2,000 and \$72,000.
  - iii) \$10,000 and \$80,000.
  - iv) \$20,000 and \$90,000.

(c) A Company exchanged 100 shares of B Corporation stock, which A was holding as a long-term investment, for a machine from F Company. B Corporation stock, which had been purchased by A Company for \$60 per share, was selling on the market at \$68 per share at the date of exchange. The machine had a recorded amount on F's books of \$6,200. What journal entry should A Corporation make to record this exchange?

i)	Equipment Investment in B stock	\$6,000	\$6,000
ii)	Equipment Investment in B stock Gain on disposal of B stock	\$6,200	\$6,000 200
iii)	Equipment Investment in II stock	\$6,800	\$6,800
iv)	Equipment Investment in B stock Gain on disposal of B stock	\$6,800	\$6,000 800

- (d) Video Theatre Corporation recently purchased the Roxy Theatre and the land on which it is located. Video plans to demolish the building and to build a new modern theatre on the site. The cost of the Roxy Theatre should be:
  - i) written off as an unusual loss in the year the theatre is demolished.
  - ii) capitalized as part of the cost of the land.
  - iii) depreciated over the period from the date of acquisition to the date that the theatre is to be demolished.
  - iv) capitalized as part of the cost of the new theatre.
- (e) Time Plan Company purchased a machine on the following basis: \$10,000 cash on the date of purchase and three signed \$10,000 non-interest bearing notes, with one note due at the end of each of the next three years. The company can obtain financing at 15%. At what amount should the machine be recorded on Time Company's books?
  - i) \$10,000.
  - ii) \$40,000
  - iii) \$32,830.
  - iv) \$28,550.

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- (f) Goodwill should be written off:
  - i) as soon as possible against retained earnings.
  - ii) as soon as possible as an extraordinary item.
  - iii) by a systematic charge against retained earnings over the period benefited, but not more than 40 years.
  - iv) by a systematic charge to expense over the period benefited, but not more than 40 years.

#### (g) A deferred charge should be:

- i) expensed as incurred.
- ii) capitalized and not amortized until it clearly has no value.
- iii) capitalized and amortized over the estimated period of benefit.
- iv) capitalized and amortized over the estimated period benefited but not to exceed 40 years.
- (h) During 1984 major Canadian breweries are switching to a different shaped bottle, resulting in losses on the inventory of the old bottles, ranging from \$8 million for one brewer to \$18 million for the other two. The loss should be treated as:
  - i) an extraordinary item in the income statement.
  - ii) an expense in the income statement.
  - iii) a prior period adjustment in the statement of retained earnings because the purchase of "old" bottles was made in prior years.
  - iv) an accounting error for having purchased the "old" bottles and reflected in the statement of retained earnings.
- Q.7 Michael Taylor, a merchant, kept only limited records. Major purchases including merchandise were paid by cheque, but most other disbursements were paid out of cash receipts. Cash in excess of \$300 on hand at the end of the week was deposited in the bank. No record was kept of cash in the bank nor was a record kept of sales. A record of accounts receivable was maintained by keeping a copy of the charge ticket; this copy was given to the customer when the account was paid.

Taylor had started business the first week of January 1984, with \$50,000 cash. The first week's transactions included the rental of a suitable building at \$500 per month with the first payment due on January 2, the date of the lease. On January 5. Taylor purchased equipment for \$12,000 list price payable in ten equal monthly instalments of \$1,200 each beginning February 5. Had Taylor paid cash, he would have received a 5% discount on the list price. Taylor estimated that the equipment would be useful for ten years at which time it would be sold for salvage at \$400. On January 6, merchandise costing \$25,000 arrived.

An analysis of the bank statements for the year showed total deposits of \$290,000. This amount included the initial investment and a \$10,000 loan for which Taylor signed a 12%, one-year note dated June 30. The balance on the bank statement on December 31, 1984, was \$9,400, but there were December dated cheques amounting to \$2,100 not paid by the bank until January. Cash-on-hand on December 31, 1984 was \$300. An inventory of merchandise taken on December 31, 1984, showed \$36,800 at cost. Tickets for accounts receivable totaled \$8,400, but \$380 of that amount is probably not collectible. Customers ordered special merchandise not carried in stock by depositing 50% of the selling price. \$400 of such advances by customers were outstanding on December 31. Unpaid suppliers' invoices for merchandise amounted to \$8,200. Taylor paid himself, in cash, a salary of \$200 per week (52 weeks), and other cash disbursements were as follows:

Utilities	\$1,400
Telephone	320
Advertising	420
Sales personnel (part-time)	8,800

Analysis of the cheque stubs indicated that cheques were drawn for the following:

Monthly rental payments
Monthly payments for equipment
Merchandise purchases
Business taxes for the year, \$500
Three-year insurance policy dated February 1, 1984 on equipment and contents. The premium for the three years was \$1,800.
Delivery service, \$1,100

At year-end, Taylor estimated that unpaid utilities for December would amount to \$150 and delivery service of \$100 for December remained unpaid.

Early in January 1985, the banker telephoned Taylor and requested a set of financial statements. Taylor felt that he did not have the time or knowledge to prepare, in good form, the requested statements and engaged you to prepare these for him.

#### **REQUIRED:**

Prepare the balance sheet and income statement for the year ended December 31, 1984.

(Hint: Set up the balance sheet and income statement formats and fill in as many of the amounts as you can determine.)

**END OF EXAMINATION** 

100

Present Value of 1

Periods	9%	10%	11%	12%	15%	18%	20%
1	.91743	.90909	.90090	.89286	.86957	.84746	.83333
2	.84168	.82645	.81162	.79719	.75614	.71818	.69444
3	.77218	.75131	.73119	.71178	.65752	.60863	.57870
4	.70843	.68301	.65873	.63552	.57175	.51579	.48225
5	.64993	.62092	.59345	.56743	.49718	.43711	.40188
6	.59627	.56447	.53464	.50663	.43233	.37043	.33490
7	.54703	.51316	.48166.	.45235	.37594	.31393	.27908
8	.50187	.46651	.43393	.40388	.32690	.26604	.23257
9	.46043	.42410	.39092	.36061	.28426	.22546	.19381
10	.42241	.38554	.35218	.32197	.24718	.19106	.16151
11	.38753	.35049	.31728	.28748	.21494	.16192	.13459
12	.35553	.31863	.28584	.25668	.18691	.13722	.11216
13	.32618	.28966	.25751	.22917	.16253	.11629	.09346
14	.29925	.26333	.23199	.20462	.14133	.09855	.07789
15	.27454	.23939	.20900	.18270	.12289	.08352	.06491
16	.25187	.21763	.18829	.16312	.10686	.07078	.05409
17	.23107	.19784	.16963	.14564	.09293	.05998	.04507
18	.21199	.17986	.15282	.13004	.08081	.05083	.03756
19	.19449	.16351	.13768	.11611	.07027	.04308	.03130
20	.17843	.14864	.12403	.10367	.06110	.03651	.02608
21	.16370	.13513	.11174	.09256	.05313	.03094	.02174
22	.15018	.12285	.10067	.08264	.04620	.02622	.01811
23	.13778	.11168	.09069	.07379	.04017	.02222	.01509
24	.12640	.10153	.08170	.06588	.03493	.01883	.01258
25	.11597	.09230	.07361	.05882	.03038	.01596	.01048

## Present Value of Annuity of \$ 1

1							
Periodic					450/	400/	20%
Rents (n)	9%	10%	11%	12%	15%	18%	20%
1	.91743	.90909	.90090	.89286	.86957	.84746	.83333
2	1.75911	1.73554	1.71252	1.69005	1.62571	1.56564	1.52778
3	2.53129	2.48685	2.44371	2.40183	2.28323	2.17427	2.10648
4	3.23972	3.16987	3.10245	3.03735	2.85498	2.69006	2.58873
5	3.88965	3.79079	3.69590	3.60478	3.35216	3.12717	2.99061
6	4.48592	4.35526	4.23054	4.11141	3.78448	3.49760	3.32551
7	5.03295	4.86842	4.71220	4.56376	4.16042	3.81153	3.60459
8	5.53482	5.33493	5.14612	4.96764	4.48732	4.07757	3.83716
9	5.99525	5.75902	5.53705	5.32825	4.77158	4.30302	4.03097
10	6.41766	6.14457	5.88923	5.65022	5.01877	4.49409	4.19247
11	6.80519	6.49506	6.20652	5.93770	5.23371	4.65601	4.32706
12	7.16073	6.81369	6.49236	6.19437	5.42062	4.79322	4.43922
13	7.48690	7.10336	6.74987	6.42355	5.58315	4.90951	4.53268
14	7.78615	7.36669	6.98187	6.62817	5.72448	5.00806	4.61057
15	8.06069	7.60608	7.19087	6.81086	5.84737	5.09158	4.67547
16	8.31256	7.82371	7.37916	6.97399	5.95423	5.16235	4.72956
17	8.54363	8.02155	7.54879	7.11963	6.04716	5.22233	4.77463
18	8.75563	8.20141	7.70162	7.24967	6.12797	5.27316	4.81219
19	8.95011	8.36492	7.83929	7.36578	6.19823	5.31624	4.84350
20	9.12855	8.51356	7.96333	7.46944	6.25933	5.35275	4.86958
							4.00400
21	9.29224	8.64869	8.07507	7.56200	6.31246	5.38368	4.89132
22	9.44243	8.77154	8.17574	7.64465	6.35866	5.40990	4.90943
23	9.58021	8.88322	5.26643	7.71843	6.39884	5.43212	4.92453
24	9.70661	8.98474	8.34814	7.78432	6.43377	5.45095	4.93710 4.94759
25	9.82258	9.07704	8.42174	7.84314	6.46415	5.46691	4.94759

# ACCOUNTING 211 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### General

There were not as many extremes of performance as on recent past examinations, especially at the lower end of the scale. This pattern may have resulted from a greater proportion of essay answers being required.

#### Specific

- Q.1 The question generally was well answered although a number of students did not explain the presentation of the items in financial statements as required in the question.
- Q.2 Part (a) was very poorly answered. The journal entry for 1982 was handled without difficulty; however, the entries for 1983 and 1984 were mishandled by almost all. Students were unable to calculate the correct dollar amounts.
  - Part (b) was answered very well by most of the students.
- Q.3 This question was poorly answered by many. They had difficulty in relating the matching principle in part (a); distinguishing between book value and market value in answering part (b), and explaining the significance of book value in part (c).
- Very well answered by most students. Loss of marks was for errors in calculation of the decrease in investment revenue resulting from additional depreciation and amortization of goodwill. Also, in part (c) many stated that equity method was used when the investor had controlling interest in the investee corporation.
- Q.5 No apparent problems in answering this question.
- Q.6 Well answered. Loss of marks was for wrong answers to parts (a) and (h). For part (h), many students regarded the loss as extraordinary: it was not.
- Although students were awarded many part marks for their answers, not one student was able to correctly calculate the dollar amount for sales and only one calculated the correct amount for cost of goods sold. Some students calculated the correct amount of net income, but there appeared to be a general misunderstanding of the treatment of disbursements. Most students assumed that all disbursements were paid by cheque, which was not the case. Most students were able to correctly determine nearly all of the balance sheet amounts and expense items on the income statement. Consequently, most students received a passing mark on this question.

## ACCOUNTING 211 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks				Tim	e: 3 Hours
12	Q.1 (3)	(a)	Comparative statements are changed (corrected) accounting policy. Retroactive change of affected		of the new
			<ol> <li>Only current and future statements reflect a chaprospective change.</li> </ol>	ange in estimate	e. This is a
			iii) Same as (i) above - a retroactive change of affec	ted statements.	
	(3)	(b)	Change from straight-line depreciation method method.	to a diminishin	ng balance
			ii) Change in estimate of remaining service life of p	lant and equipm	nent.
			iii) Total cost of plant and equipment expensed at t period.	ime of purchase	in a prior
9	Q.2 (6)	(a)	1982 Cost of goods sold Inventory adjustment to LIFO	\$3,000	\$3,000
			1983 Inventory adjustment to LIFO Cost of goods sold	\$5,000	\$5,000
			1984 Cost of goods sold Inventory adjustment to LIFO	\$7,000	\$7,000
	(3)	(b)	Inventory - LIFO basis \$32,000	<b>1983</b> \$35,000	<b>1984</b> \$34,000
9	Q.3 (3)	` ′	No. The procedure used is the best estimate of dep matched with revenues in any given period; it is a proof of the mine over its productive life on a systematic a	cess of allocation	of the cost
	(3)	(b)	The process as described in (a) is allocation not valuadetermined by demand and supply and the factors that	ation. Values are at affect these det	ultimately terminants.
	(3)	(c)	Book value represents the cost that has not yet been	allocated to the	e revenues.

16	Q 4			
		i) Investment in B Corporation  Cash	\$60,000	\$60,000
	(2)	ii) Investment in B Corporation Investment revenue	\$ 6,000	\$ 6,000
	(2)	iii) Dividends receivable Investment in B Corporation	\$ 2,000	\$ 2,000
	(2)	iv) Investment revenue Investment in B Corporation	\$ 400	\$ 400
	(2)	v) Investment revenue Investment in B Corporation	\$ 1,200	\$ 1,200
	(2) (b)	Dividends receivable Investment revenue	\$ 2,000	\$ 2,000

- (4) (c) The equity method should be used when: (i) 50 % or less of the voting shares of investee corporation is held by the investor; and (ii) the investor exercises significant influence over the affairs of the investee corporation.
- Q.5
   (3) (a) Justification for the LCM rule is that, as a current asset, temporary investments in marketable securities should be valued at not more than their realizable value.
  - (4) (b) The securities must be readily marketable and the intent of management not to keep the securities for more than one year, or the operating cycle, whichever is the longer.
  - (3) (c) No. The determination of the allowance is based on the market value of the portfolio and not on an individual security basis. The allowance should have been \$3,000 not \$4,000.
  - (3) (d) Yes. The gain or loss is recognized at time of sale based on the cost of the security sold. The adjustment in the allowance account is made at year-end based on the market value of the total portfolio.
  - (3) (e) The balance in the allowance account after the proper adjustment should be \$400. (Cost of the portfolio is \$60,000 and market value of the portfolio is \$59,600.)

- Q.6 NOTE: 2 marks for each correct answer (including justification).
  - (a) ii) The normal selling price of high volume inventory should be used as a basis for determining the fair value of the truck.
  - (b) iv) The "new" computer should be recorded in accordance with the cost principle at its market value of \$90,000 and a gain of \$20,000 recognized on trade-in of the "old" computer.
  - (c) iv) The equipment is recorded at fair market value as measured by the market value of the stock.
  - (d) ii) The intent of Video Theatre Corporation is to acquire the site, and all costs necessary to ready the site for use are capitalized.
  - (e) iii) The machine should be recorded at cash equivalent value at time of acquisition which is the present value of all payments and determined as \$10,000 + \$22,830.
  - (f) iv) Goodwill should be amortized like any other asset over the benefit period. The CICA Handbook recommends that the period of amortization not exceed 40 years on a straight-line basis.
  - (g) iii) A deferred charge is an asset with a limited benefit period. The cost (capitalized amount) therefore should be allocated (amortized) over the period of benefit.
  - (h) ii) The item may be unusual because of size of the amount, however it should be considered as part of the normal operation of the business regardless of size. It is not an extraordinary item or an error; the item does not meet the criteria of the latter classifications.

16

## Michael Taylor Balance Sheet As at December 31, 1984

	Cash       \$ 7,600         Accounts receivable       \$8,400         Less: Allowance for doubtful accounts       380       \$020         Inventory       36,800       1,250         Prepaid insurance       1,250       \$53,         Equipment       \$11,400       10,         Less: Accumulated depreciation       1,100       10,         \$63,       \$63,	Interest payable 600  Michael Taylor, 300 Capital*	) ) )
	*Michael Taylor, Capital at beginning (in Add: Net income for the year	vestment)	\$50,000 4,920 \$54,920
	Deduct: Withdrawals Michael Taylor, Capital, December 31, 19	984	10,400 \$44,520
(10)	Michael Income S For the year ended	tatement	
	Sales Cost of goods sold		\$259,640 232,700 \$ 26,940
	Expenses:  Wages Advertising Telephone Utilities Delivery service Insurance Interest Business taxes Depreciation of equipment Bad debts Rent Total expenses Net income	\$8,800 420 320 1,550 1,200 550 1,200 500 1,100 380 6,000	\$ 22,020 \$ 4,920

## ACCOUNTING 211 EXAMINATION June, 1985

Marks Time: 3 Hours

#### Instructions:

- 1. Read carefully and follow precisely the instructions on the front of the examination booklet that relate to the way in which your answers are to be written. You must start each question on the top of a new page (on the right side) and keep the calculations with the question they pertain to (on the left side).
- 2. Number all pages you use and on page 1 provide a table of contents, e.g., Q.4 page 6.
- 3. Read the questions carefully and answer what is asked.
- 4. No narratives are required for journal entries.
- 16 Q.1 The following series of transactions occurred in Northern Corporation during 19X1.

  Analyze each and answer the required questions.
  - (4) (a) The Corporation acquired a much needed operational asset. The list price on the item was \$37,500. Since the Corporation was short of cash, it exchanged a parcel of land it had acquired 8 years earlier for \$20,000. The land was assessed for tax purposes at \$30,000, and a recent appraisal by two independent appraisers (almost identical amounts by each appraiser) resulted in an average of the two appraisals of \$35,000.

- i) What accounting principle should govern at the time of acquisition?
- ii) Record the acquisition of the operational asset in exchange for the land.
- iii) What accounting principle governs the recognition of depreciation on the asset?

(4) (b) The Corporation which manufactures equipment for sale, sold five pieces of equipment in December 19X1 at 20% off the list price. The list price was \$10,000 for each piece of the equipment. The Corporation estimated, based on prior years' experience, that \$600 will be spent during 19X2 on each of the five pieces of equipment to make good on the one-year warranty covering the sold equipment.

#### REQUIRED:

- i) When should the warranty expense be recognized?
- ii) What accounting principle should govern the recognition of the warranty expense?
- iii) Give the journal entry (entries) to record the warranty expense for 19X1 and 19X2.
- (4) (c) The Corporation owns a plant that is located in a low lying area near a river. As a result, the Corporation suffers a flood loss regularly. During 19X1, the flood was particularly severe and caused \$50,000 damage. The damage was repaired and the following entry was made to recognize the loss:

Retained earnings	\$50,000	
Cash		\$50,000

#### REQUIRED:

- i) What accounting principle should govern the recording of the loss?
- Are you in agreement with the entry the Corporation made to record the loss? If not, present the entry you would make.
- iii) Indicate the statement presentation of the loss.
- (4) (d) Goods for resale (merchandise inventory) were being acquired from regular suppliers at \$10 per unit. However, in 19X1 the Corporation was able to make a good deal and purchased 5,000 units for \$37,500 cash. Since the deal was completed in 19X1 and the Corporation anticipated no change in the selling price it believed that the "windfall profit" belonged to 19X1 and consequently recorded the purchase as:

Inventory	\$50,000	
Cash		\$37,500
Extraordinary gain		12.500

- i) Was any accounting principle(s) violated in the Corporation's recording of the purchase? If yes, identify the principle(s).
- ii) If you are in disagreement with the Corporation's recording of the purchase, present the journal entry you would have made at the time of purchase (assume the perpetual inventory system).

Q.2 The receivable control account of Bayshore Corporation has a debit balance of \$68,950. An analysis of the account indicates that the following items were included in the balance:

i)	Accounts from regular sales (current)	\$60,000
ii)	Accounts known to be uncollectible	2,000
iii)	Credit balances in customers accounts	1,000
iv)	Past due accounts estimated as uncollectible	
	(does not include (ii) above)	2,950
v)	Due from employees (non-current loans)	5,000

#### REQUIRED:

- (6) (a) Give journal entries to (i) reclassify items which do not belong in the accounts receivable account and (ii) reflect bad debt expense. The allowance for doubtful accounts had a zero balance before any year-end adjustments.
- (4) (b) Indicate proper reporting on Bayshore Corporation's year-end balance sheet.
- Q.3 Prepare journal entries to record the following transactions relating to a temporary investment in the 12% bonds of Great Lakes Corporation. These bonds pay interest each May 1 and November 1. The Corporation's year-end is December 31.

August 1 Purchased \$80,000 par value bonds for \$79,600 including interest.

November 1 Collected interest.

December 31 Adjusting entries with regard to the investment in the bonds. On December 31, the bonds were selling at 96.

February 1 Sold half of the bonds, receiving a cheque for \$39,200 including interest.

May 1 Collected interest.

12 Q.4

- (8) (a) Identify the inventory system (perpetual or periodic) that is referred to in each of the following statements.
  - i) Provides more control features.
  - ii) Requires adjusting (or closing) entries for the beginning and ending inventories
  - iii) Merchandise inventory is debited when goods are purchased.
  - iv) Cost of goods sold is computed as a residual.
  - y) Inventory taking (physical count) must precede statement preparation.
  - vi) The preadjusted trial balance reflects the beginning inventory.
  - vii) The preadjusted trial balance reflects the ending inventory.
  - viii) Cost of goods sold is reflected in the preadjusted trial balance.

- (4) (b) The following cases are unrelated.
  - i) A company using the periodic inventory method correctly recorded a December 30 purchase of merchandise but the merchandise was not included in the physical inventory count on December 31, the company's year-end. What was the resulting effect on net income and assets?
  - ii) On December 31, a company completed an inventory count and included some merchandise that had been received on consignment. No purchase had been recorded. What was the resulting effect on net income and assets?
  - iii) All prices have been rising, and profit margins are positive and relatively constant over time. Will application of the moving average cost method result in an inventory cost that is higher or lower than LIFO cost? Will the inventory cost be higher or lower than FIFO cost?
  - iv) If the beginning inventory is understated by \$1,200, and ending inventory is overstated by \$700, by what amount will net income for the period be overstated or understated?

15 Q.5

(5) (a) On January 2, 19X1, a company purchased an operational asset that cost \$20,000. At the date of purchase, the full amount was debited to expense. At the end of 19X4, the audit disclosed this item. The asset in question has no residual value and should be depreciated over a ten-year period using diminishing balance method at double the straight-line rate. The books for 19X4 have not been closed.

#### REOUIRED:

- Give the necessary journal entry (entries) with regard to the asset, as of December 31, 19X4, the company's year-end.
- ii) The company presents in its annual report five-year comparative statements. How would the comparative statements be affected by the audit discovery (that is, how would the discovery of the initial recording of the purchase be reflected in the 19X4 comparative statement presentation)?
- (2) (b) On December 31, 1977, a company purchased an operational asset for \$36,000. At the date of purchase the full amount was debited to "plant and equipment", and was depreciated on a straight-line basis, over a ten-year period with no residual value. During 1984, it was determined that the operational asset would have an additional six years service-life, that is, a total service-life of 12 years rather than the 10 years originally assumed.

#### REQUIRED:

- Give the necessary journal entry (entries), with regard to the asset, as of December 31, 1984, the company's year-end.
- ii) If the company presents comparative statements, how would the change from a ten-year life to a twelve-year life be reflected in these statements (i.e., how would the comparative statements be affected)?

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(5) (c) On January 2, 1982, a corporation purchased an operational asset at a cost of \$20,000. At the date of purchase, the full amount was debited to "plant and equipment". The asset was being depreciated by using the diminishing balance method at a 20% rate. During 1985, it was decided that the straight-line method with a service life of ten years and no residual value was more appropriate. Consequently, the change is to be made on December 31, 1985, the corporation's year-end.

#### REQUIRED:

- i) Give the necessary journal entry (entries) as of December 31, 1985, with regard to the operational asset.
- ii) If the company presents comparative statements, how would the change, from the diminishing balance method to the straight-line method, be reflected in these statements (i.e., how would the comparative statements be affected)?
- (3) (d) Identify the nature of the accounting change in:
  - i) part (a)
  - ii) part (b)
  - iii) part (c)
- 29 Q.6
  - (5) (a) Xenia Corporation failed to make the following adjusting journal entries at the end of 19X1 and 19X2:
    - 19X1 Accrued wages payable not recorded \$2,500
    - 19X2 Prepaid insurance, \$1,200 (debited to insurance expense when paid)

In addition, the corporation failed to write off \$1,800 of uncollectible accounts. The corporation uses the allowance method to account for bad debts and bases the amount on a percentage of credit sales.

- i) In 19X2, Xenia reported net income of \$46,000. By what amount was the reported net income understated or overstated?
- ii) If the above errors were not discovered until 19X3, what would the correcting journal entry be?

(2) (b) The records for a company showed the following for 1984:

Balance in accounts payable January 1	\$200,000
Balance in accounts payable December 31	223,000
Paid creditors during 1984	148,000

#### **REQUIRED:**

Determine the amount of purchases in 1984.

(2) (c) The records for a company showed the following for 1984:

Expenses paid in cash Expenses incurred but not paid	\$10,000 4,000
Accrued expense payable account January 1, balance December 31, balance	150 180
Prepaid expense account January 1, balance December 31, balance	200 290

#### REQUIRED:

Determine the expense amount for 1984.

(10) (d) An investor holds 1,000 shares (25%) of the outstanding shares of Lake Corporation. The shares were purchased January 2, 1984, at \$80 per share when the following information was available for Lake Corporation.

	Book Value	Fair Value*
Non-depreciable assets	\$100,000	\$100,000
Depreciable assets*	200,000	260,000
Liabilities	80,000	80,000
Shareholders' equity (4,000 shares)	220,000	

<sup>\*</sup>Ten years remaining life

In 1984, Lake Corporation reported net income of \$48,000 and declared \$24,000 of dividends.

<sup>\*\*</sup>Implied goodwill expected to have a five-year life.

#### REQUIRED:

**NOTE:** Answer in the examination booklet as required and support your answers with calculations.

- i) Determine the implied goodwill, to be amortized by the investor.
- ii) If the investor accounts for investments using the equity method, the 1984 income statement will reflect investment revenue from Lake Corporation of \$\_\_\_\_\_\_
- iii) Under the equity method the investor's investment account at the end of 1984 will reflect a balance of \$\_\_\_\_\_\_ for the Lake Corporation stock?
- iv) If the investor chose to account for the investment in Lake Corporation stock on the cost basis what would the answers to (ii) and (iii) be?
- v) When should the investor in Lake Corporation use the equity method?
- (10) (e) An investor purchased as a long-term investment one hundred \$1,000 par value, 16% bonds of River Corporation for \$118,000. The bonds were purchased on September 1 and mature in 9 years. Interest on the bonds is payable on March 1 and September 1. The investor records investments at cost, and any amortization of discount or premium, determined on a straight-line basis, is charged directly to the investment account. Three years and three months after the bonds were purchased, the investor sold 50 of the bonds for a total consideration of \$55,000.

#### REQUIRED:

- i) Give the journal entry for the sale of the bonds by the investor.
- ii) Assume that three years before maturity on September I, immediately after the interest payment, River Corporation redeemed the bonds at 108. Give the journal entry on the investor's books to record the receipt of the cash for the 50 bonds.

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**END OF EXAMINATION** 

# ACCOUNTING 211 EXAMINATION June, 1985 EXAMINER'S

#### General

The examination was well balanced and the range of marks (over 70) indicated a wide variation in the level of preparation for this examination.

#### Specific

- Q.1 Students answered parts (a), (b) and (d) well. In part (c) many students did not provide correct answers to all requirements.
- Q.2 Part (a) of this question was answered well. In part (b), however, many students demonstrated a lack of knowledge of proper presentation of account balances in the balance sheet.
- Q.3 Many students had difficulty with journal entries relating to the transactions of December 31, February 1 and May 1. This question was poorly answered.
- Q.4 This question was well answered by most of the students.
- Q.5 This question was well answered by most of the students. Loss of marks was for incomplete answers both journal entries and narratives. For example, simply stating that the correction was retroactive was not enough. The correct answer was that prior period statements (all statements affected) were re-stated. Many students lost marks for answering that only the Statement of Retained Earnings was restated.
- Q.6 This question was very poorly answered, with errors on all parts of the answer.
  - Part (a), the amount by which net income was understated was incorrectly calculated and journal entries were incorrect.
  - Parts (b) and (c) for the most part were answered well by most students.
  - Part (d), subsection (ii) seemed to give students the most difficulty.
  - Part (e) was very poorly answered. Most students did not record the interest revenue of \$1,750 and did not calculate the proper amount of loss on investment.

## ACCOUNTING 211 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks			Time: 3 Hours
16	Q.1 (4)	(a) i) The cost principle.	
		ii) Plant and equipment \$35,000 Land Gain on exchange	\$20,000 15,000
		iii) The matching principle.	
	(4)	<ul><li>(b)</li><li>i) In 19X1, the year in which revenue was recognized which expense.</li></ul>	gave rise to the
		ii) The matching principle.	
		iii) December 19X1 Warranty expense \$3,000 Estimated Warranty liability	\$3,000
		December 19X2 No entry.	
	(4)	(c) i) The matching principle.	
		ii) No. Flood damage expense \$50,000 Cash	\$50,000
		iii) The flood damage expense would be one of the expenses to debefore extraordinary items.	etermine income
	(4)	(d) i) Yes, cost and revenue recognition principles.	
		ii) Inventory \$37,500 Cash	\$37,500

10	Q.2				
	(6)	(a)	Accounts receivable	\$62,950	
			Allowance for doubtful accounts	2,000	
			Loans due from employees	5,000	
			Accounts receivable Customer deposits		\$68,950 1,000
			Bad debt expense	\$ 4,950	
			Allowance for doubtful accounts		\$ 4 950

**NOTE TO MARKER:** Alternate solution could be to write-off directly the \$2,000 known uncollectible accounts. The second journal entry would then be for \$2,950.

## (4) (b) Current assets:

Accounts re		\$62,950	
Less: Allow	ance for doubtful accounts	2,950	
		\$60,000	
Special rece	eivables:		
Advances t	o employees	\$ 5,000	
Current lial	bilities:		
Customer's	credit balances	\$ 1,000	
August 1	Temporary investment	\$77,200	
	Interest receivable	2,400	
	Cash		\$79,600
November 1	Cash	\$ 4,800	
	Interest receivable		\$ 2,400
	Interest revenue		2,400
December 31	Interest receivable	\$ 1,600	
	Interest revenue		\$ 1,600
	Loss on temporary investments	\$ 400	
	Allowance for market decline		
	temporary investments		\$ 400
*February 1	Interest receivable	\$ 400	
	Interest revenue		\$ 400
	Cash	\$39,200	
	Loss on sale of temporary		
	investments	600	
	Interest receivable		\$ 1,200
	Temporary investments		38,600
May I	Cash	\$ 2,400	
	Interest receivable		\$ 800
	Interest revenue		1,600

<sup>\*</sup>The February 1 entries may be combined. Alternate solutions were accepted.

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Q.3

1	2		0	- 2
п	1			4

- (8) (a) i) Perpetual
  - Periodic ii)
  - iii) Perpetual
  - iv) Periodic
  - v) Periodic
  - vi) Periodic
  - vii) Perpetual
- viii) Perpetual
- (4) (b) i) Net income was understated. Assets were understated.
  - ii) Net income was overstated. Assets were overstated.
  - iii) Higher than LIFO cost, lower than FIFO cost.
  - iv) Overstated by \$1,900.

#### 15 0.5

(5) (a) i) Plant and equipment \$20,000

Retained earnings - accounting error Accumulated depreciation

\$10,240 9,760

Depreciation expense

\$ 2,048

Accumulated depreciation \$ 2,048

- ii) Comparative statements should be restated to reflect the correction of the accounting error.
- (b) i) Depreciation expense

\$ 2,400

Accumulated depreciation

\$ 2,400

- There would be no effect on the comparative statements. This is a change in estimate.
- (5) (c) i) Accumulated depreciation Retained earnings - change in policy

\$ 3,760

\$ 2,000

Depreciation expense Accumulated depreciation

\$ 2,000

\$ 3,760

- ii) Comparative statements would be restated to reflect the change in accounting policy.
- (3)(d) i) Accounting error.
  - ii) Change in estimate.
  - iii) Change in accounting policy.

29 Q.6

(5) (a) i) Understated by \$3,700.

ii) Prepaid insurance	\$ 1,200
Allowance for doubtful accounts	1,800
Accounts receivable	\$ 1,800
Retained earnings accounting error	or 1,200

- (2) (b) \$171,000. (\$223,000 \$200,000 + \$148,000)
- (2) (c) \$13,940. (\$10,000 + \$4,000) (\$290 \$200) + (\$180 \$150).

100%

- (10) (d) i) \$80 × 4,000 shares \$320,000

  Net fair value of assets 280,000

  Implied goodwill (total) \$40,000

  Goodwill to be amortized by investor = \$10,000
  - ii) 25% of net income as reported by Lake
    Deduct: Additional depreciation
    Amortization of goodwill
    Investment revenue for 1984

    \$12,000

    \$1,500

    3,500

    \$8,500
  - iii) January 2, 1984 balance (cost) \$80,000
    Add: Investment revenue \$ 8,500
    Less: Dividends 6,000 2,500
    \$82,500
  - iv) \$6,000; \$80,000.
  - v) When the investor holds 50% or less of the voting shares and exercises significant influence over the affairs of Lake Corporation.

(10)	(e) i)	Accrued interest receivable Investment in bonds Interest revenue	\$ 2,000	\$ 250 1,750
		Cash	\$55,000	
		Loss on investment	2,750	
		Accrued interest receivable		\$ 2,000
		Investment in bonds		55,750

#### NOTE TO MARKER: One compound entry is acceptable.

ii) Cash	\$ 54,000
Investment in bonds	\$53,000
Gain on redemption of bonds	1,000

100

**END OF SOLUTIONS** 

## ACCOUNTING 222 EXAMINATION December, 1984

Marks	Time: 3 Hours
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Q.1 Selected accounts from the general ledger of Alpha Company Ltd. as of December 31, 1982, are presented below:

Bonds payable, $4\frac{1}{2}\%$ each \$1,000 bond is convertible to 80 shares of the common stock	\$ 60,000
Bonds payable, 6½% each \$1,000 bond is convertible to 90 shares of the common stock	\$300,000
Common stock, no par authorized 500,000 shares; issued and outstanding throughout the period, 100,000 shares	\$850,000
Stock dividend issued December 31, 1982, 50,000 shares (not included in the 100,000 shares above)	\$425,000
Retained earnings (includes effect of dividends on all shares)	\$480,000
The 1982 income was reported as follows:	
Income before extraordinary items Extraordinary gain Net income after taxes	\$125,000 12,000 137,000

In addition, there were stock options outstanding which would result in the issuance of 10,000 shares of common stock upon the payment of \$40 per share to the company. These options could not be converted, however, until December 31, 1995. Assume a tax rate of 40%.

- (5) (a) Calculate basic earnings per share for 1982.
- (5) (b) Calculate fully diluted earnings per share for 1982, on net income only.
- (5) (c) What effect does the conversion date of the stock options have on the calculation of earnings per share figures for 1982?

(5) (d) Assume that the company paid \$91,333 income tax on its operating income and extraordinary item and that this amount is shown as a tax expense on the bottom of the income statement as:

Tax expense	\$(91,333)
Income before extraordinary item	125,000
Extraordinary item	12,000
Net income after tax	\$137,000

Reconstruct the bottom of the income statement to reflect appropriate tax allocation methods.

20 Q.2 Armour Company is engaged in selling electric motors to wholesalers. Condensed comparative balance sheets follow:

# Armour Company Ltd. Balance Sheets As at December 31, 1983 and 1982

Assets		1983		1982
Current assets  Cash  Accounts receivable (net) Inventory		\$ 5,000 9,000 12,000 \$26,000		\$ 4,000 5,000 10,000 \$19,000
Long-term investments		\$ 5,000		\$12,000
Fixed assets Land Machinery and equipment Less accumulated depreciation  Total Assets  Liabilities and shareholders' equity	\$47,000 7,000	\$10,000 <u>40,000</u> <u>\$50,000</u> <u>\$81,000</u>	\$30,000 5,000	\$ 0 25,000 \$25,000 \$56,000
Accounts payable Long-term liabilities Notes payable Shareholders' equity Common shares Retained earnings Total liabilities and shareholders' equity	\$40,000 13,000	\$ 8,000 20,000 <u>53,000</u> <u>\$81,000</u>	\$25,000 9,000	\$ 6,000 16,000 34,000 \$56,000

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#### Other information:

- 1) Issued common stock in exchange for land and machinery.
- 2) Purchased machinery for cash and a \$4,000 note, payable in two years.
- 3) Paid cash dividends of \$4,000.

#### REQUIRED:

Prepare a Statement of Changes in Financial Position, Working Capital Basis, for the year ended December 31, 1983.

12 Q.3 Smith, Jones and Volpe have operated a successful partnership for many years. Volpe is nearing retirement and has proposed that he sell his share of the partnership to Martin for \$20,000. Smith and Jones agree. A balance sheet before the withdrawal of Volpe is:

#### Smith, Jones and Volpe Partnership Balance Sheet As at December 31, 1984

Cash	\$30,000	Accounts payable	\$20,000
Inventory	20,000	Smith Capital	50,000
Equipment (net)	30,000	Jones Capital	10,000
Investments	40,000	Volpe Capital	40,000
Total Assets	\$120,000	Total Equities	\$120,000

An appraisal indicated that the fair market value of investments was \$30,000 and equipment was \$40,000. During January, the partnership profit was \$12,000; Smith had drawings of \$5,000; on January 31, 1985, Volpe withdrew from the partnership and Martin was admitted.

#### REOUIRED:

Prepare, in good form, a Statement of Partners' Capital Accounts for January 1985, for presentation to each partner. Show all calculations.

Q.4 On January 1, 1980, Morrison Ltd. issued \$1,000,000, 12% bonds at 102. The bonds have a 10 year term and are redeemable by the company at any time before maturity at 104. Interest is paid on June 30 and December 31. The necessary amortization is made on a straight-line basis, also semi-annually. On July 1, 1983, one-half of the bonds were redeemed. On March 31, 1984, Minoru Ltd., an investor, purchased \$30,000 of the bonds on the open market at 98 plus accrued interest.

- (5) (a) Prepare the entry on January 1, 1980, to issue the bonds.
- (6) (b) Prepare the entry on July 1, 1983, upon redemption.
- (6) (c) Prepare the entry that Minoru made on June 30, 1984, upon receipt of interest and to amortize any premium/discount. Minoru did not record the investment net and has a December 31 year-end.
- (3) (d) Prepare the final entry that Morrison would make to retire the bonds.

Q.5 The unclassified comparative balance sheets for Wendy Company, together with other relevant information, are presented below:

#### Wendy Company Comparative Balance Sheets As at December 31, 1984

	1984	1983
Cash	\$100,000	\$103,000
Accounts receivable	35,000	37,000
Allowance for bad debts	(2,000)	(5,000)
Inventory	25,000	30,000
Plant and equipment	300,000	270,000
Accumulated depreciation	(70,000)	(60,000)
Investments	75,000	86,000
Total assets	\$463,000	\$461,000
Accounts payable	\$10,000	\$13,000
Dividends payable	_	5,000
Current portion of long-term debt	10,000	10,000
Mortgage payable	90,000	100,000
Common shares	170,000	170,000
Retained earnings	183,000	163,000
Total liabilities and equities	\$463,000	\$461,000

On January 15, 1985, the company split its shares and issued two new shares for every old share outstanding, i.e., a two for one split. 1984 sales were \$150,000 and cost of sales was \$75,000.

#### REQUIRED:

- (12) (a) Calculate the following for December 31, 1984:
  - i) acid test ratio
  - ii) receivables turnover
  - iii) inventory turnover
  - iv) average collection period
  - (4) (b) How would the January 15, 1985, transaction affect the 1985 balance sheet? Explain fully.
  - (4) (c) How does the accounting treatment of a stock split differ from that of a stock dividend? Be specific.

20

- Q.6 Select the best answer for each of the following situations. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a) write (a) (i) in your examination booklet. Select only one answer for each item. Each correct answer will receive 2 marks and no marks will be deducted for incorrect answers
  - (a) When a company adopts a pension plan, for accounting purposes, past service cost should be:
    - i) treated as a prior period adjustment because no future periods are benefited.
    - ii) amortized in accordance with procedures used for income tax purposes.
    - iii) amortized under accrual accounting to current and future periods benefited.
    - iv) treated as an expense of the period during which the funding occurs.
    - v) none of the above.
  - (b) When pension expense is presented in a statement of income, past and current service costs:
    - i) must be shown separately in computing income before extraordinary items.
    - ii) must be separated so that past service cost can be treated as an extraordinary item.
    - iii) may be either combined or shown separately in computing income before extraordinary items.
    - iv) none of the above.
  - (c) The terminal funding method of accounting for pension plans is not a generally accepted accounting method because:
    - i) it does not require the funding of past service cost.
    - ii) it is not actuarially sound.
    - iii) it does not recognize pension costs prior to the retirement of employees.
    - iv) it is not an acceptable method for income tax purposes.
    - v) none of the above.
  - (d) What is the difference between the terms "past service cost" and "prior service cost"?
    - Past service cost refers to costs applicable to periods prior to a particular date
      of actuarial valuation, and prior service cost refers to costs applicable to
      employee service prior to inception of a pension plan.
    - ii) Past service cost refers to costs applicable to employee service prior to inception of a pension plan, and prior service cost refers to costs applicable to periods prior to a particular date of actuarial valuation.
    - iii) Past service cost refers to costs applicable to a pension plan for employees who were employed by the company before the inception of the plan. Prior service cost refers to changes in pension costs that are caused by a change in actuarial valuation.
    - iv) There is no difference between the two terms, and they may be used interchangeably.
    - v) None of the above.

100

**END OF EXAMINATION** 

# ACCOUNTING 222 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

Overall, students performed well. In every question, there were at least some students who achieved 100 percent. The greatest difficulty was encountered with Question 6, and there were also problems on several questions where correct format was required.

#### Specific

- Q.1 Generally very well done. Students lost marks by ignoring the income tax effect on bond interest added back to income in part (b); and assuming that the \$12,000 extraordinary item was \$12,000 net of taxes.
- Q.2 Excellent performance generally. However, students need to improve their ability to present statements in proper format.
- Q.3 Students generally understood the transactions. However, form was often poor, particularly the statement heading; many students "short-cut" the presentation of appraisal increments because these happened to be offsetting; and many others were unable to account for or properly display the admittance of Martin.
- Q.4 Reasonably well handled. Parts (a) and (b) were well done. Difficulties encountered were with part (c), including:
  - inadequate care in reading the question and, therefore, incorrect presentation of entries for the March 31 purchase, rather than the June 30 receipt of interest;
  - difficulty calculating, naming and entering the discount; and
  - omitting to recognize that purchased interest is a receivable, and is not income.
- Parts (b) and (c) were generally well answered. Answers to part (a) tended to be either perfect or very poor. Level of preparation, rather than any common difficulty, appeared to separate excellent from poor answers.
- Q.6 This question caused the most difficulty overall. Part (c) was most often missed.

# ACCOUNTING 222 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

20 Q.1

(5) (a) *Basic* 

Before: \$125,000/150,000 = .83 After: \$137,000/150,000 = .91

(5) (b) Fully diluted After:

$$\frac{\$137,000 + (4,800 \times .3375) + (27,000 \times .4333)}{150,000 + 4,800 + 27,000} = .83$$

.3375 is the incremental EPS for the  $4\frac{1}{2}\%$  bonds, and .4333 for the  $6\frac{1}{2}\%$  bonds. 4,800 and 27,000 are the respective additional shares.

(5) (c) Options which are not to be taken up within 10 years are excluded from the calculation of fully diluted EPS. This situation occurs in this problem; therefore, the option is ignored.

(5)	(d) Operating income	\$216,333
	Tax at 40%	( 86,533)
	Income before extraordinary item	129,800
	Extraordinary item net of \$4,800 tax	7,200
	Net income after tax	\$137,000

# Armour Company Ltd. Statement of Changes in Financial Position — Working Capital Basis For the year ended December 31, 1983

Financial resources generated		
Working capital generated from:		
Operations		
Net income	\$ 8,000	
Add-depreciation	2,000	
	\$10,000	
Sale of long-term investments	7,000	
Total working capital generated		\$17,000
Financial sources not affecting working Capital		
Common shares issued for land	\$10,000	
Common shares issued for machinery	5,000	
Long-term note issued for machinery	4,000	19,000
Total financial sources generated		\$36,000
Total Imaneial Sources generated		\$30,000
Financial resources applied		
Working capital applied		
Payment of cash dividends	\$4,000	
Purchase of machinery	8,000	\$12,000
•		\$12,000
Financial resources not affecting working capital		
Land acquired by issuance of common shares	\$10,000	
Machinery acquired by issuance of common shares	5,000	
Machinery acquired by note	4,000	19,000
, ,		\$31,000
Increase in working capital		5,000
2 1		
Total financial resources applied		\$36,000

## Smith, Jones, (Volpe), and Martin Statement of Partners' Capital Accounts for January 1985

	Smith	Jones	Volpe	Martin	Total
Beginning balances	\$50,000	\$10,000	\$40,000	\$0	\$100,000
Appraisals Investments-decrease	(3,333)	(3,333)	(3,334)	0	(10,000)
Equipment-increase	3,333	3,333	3,334	0	10,000
Income for January Drawings	4,000 (5,000)	4,000	4,000	0	12,000 (5,000)
Admittance of Martin	0	0	(44,000)	44,000	0
Ending balances	\$49,000	\$14,000	\$ 0	\$44,000	\$107,000

As the partnership profit/loss ratio is not given, the partners must share equally. Volpe is selling his share to Martin, so no cash comes into the partnership on Martin's admittance.

20	0.4

(5)	(a) Cash  Bonds payable  Premium on bonds	\$1,020,000	\$1,000,000 20,000
(6)	(b) Bonds payable Premium on bonds Loss on redemption Cash	\$ 500,000 6,500 13,500	\$ 520,000
(6)	(c) Cash Interest receivable Interest income Discount on bonds Interest income	\$ 1,800 \$ 26	\$ 900 900 \$ 26
(3)	(Amortization of 600 discount over 69 months for 3 months.)  (d) Bonds payable  Cash	\$ 500,000	\$ 500,000

#### 20 Q.5

- (12) (a) i) Acid test: (100,000 + 35,000 2,000)/(10,000 + 10,000) = 6.65ii) Receivables turnover: 150,000/((33,000 + 32,000)/2) = 4.62iii) Inventory turnover: 75,000/((25,000 + 30,000)/2) = 2.73iv) Average collection: 365 days/4.62 = 79 days
- (4) (b) The differences would be that the number of shares outstanding as shown on the balance sheet would double; and, if the shares were par shares, the par value would halve. There would be no dollar changes.
- (4) (c) A stock split has no effect on the dollar values of the accounts. A stock dividend, however, would capitalize retained earnings. Overall, the total owners' equity would not change in either situation.
- 8 Q.6 NOTE: 2 marks each.
  - (a) iii)
  - (b) iii)
  - (c) v)
  - (d) iii)

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**END OF SOLUTIONS** 

#### ACCOUNTING 222 EXAMINATION March, 1985

Marks Time: 3 Hours

Q.1 The Alberta Company uses tax-deferral accounting. The following information was supplied by the tax accountant:

	1982	1983
Pre-tax accounting income Tax free dividend, income from other corporations (included in accounting	\$200,000	\$250,000
income)	· 19,000	22,000
Capital cost allowance Depreciation (included in pre-tax accounting	15,000	20,000
income)	5,000	13,000

The company had no timing differences other than those above, no permanent differences or other complicating income tax factors in 1982 and 1983.

- (5) (a) Prepare a schedule computing taxable income for 1982 and 1983.
- (5) (b) Prepare the journal entry to record income taxes for the company for 1982 and 1983, assuming the income tax rate for each year was 30%.
- (5) (c) Prepare the journal entry to record the income taxes for the company for 1982 and 1983, assuming the income tax rate was 30% for 1982 and 40% for 1983.
- (5) (d) Why is the concept of "virtual certainty" important in the reporting of operating loss carry-forwards? Do not define "virtual certainty."
- Q.2 Harriet Corporation issued \$140,000, 10%, ten-year convertible bonds. Interest is paid at 5% on June 30 and December 31. Each \$1,000 bond is convertible into ten shares of common stock (par \$50) at any interest date after three years from issuance. The bonds were sold at 98 to Oliver Corporation as a long-term investment on January 31, 1978. Issue date was January 1, 1978. There is no ready market for Harriet Corporation bonds.

#### REQUIRED:

- (5) (a) Give the journal entry for the issuer at the date of sale.
- (5) (b) Give the journal entry for the investor at the date of sale.
- (5) (c) Give the journal entries for the issuer, assuming that the conversion privilege is subsequently exercised by Oliver Corporation immediately after the end of the third year. Assume that, at date of conversion, the common stock was selling at \$125 per share. Use the book value method.
- (5) (d) Give the journal entries for the investee, assuming the same conditions as in part (c), except that the market value method is to be used.
- Q.3 Barron Ltd. is a manufacturer of light fixtures. The accountant is preparing the financial statements for the year ended December 31, 1983. Selected financial information necessary for Earnings Per Share (EPS) calculations follows:

Bonds payable, 9½%, non-convertible	\$ 90,000
Common stock, no par authorized 100,000 shares; issued and outstanding throughout the year, 50,000 shares	\$600,000
Preferred stock, 6%, par \$10 convertible, cumulative, authorized 25,000 shares; issued and outstanding throughout the year, 10,000 shares	\$100,000
Contributed capital in excess of par, preferred stock	\$ 30,000
Retained earnings (no dividends declared during the year)	\$290,000
Income before extraordinary items Extraordinary loss (net of tax) Net income after taxes	\$ 85,000 15,000 70,000
Average income tax rate 40%	

Average income tax rate, 40%

The preferred shares are convertible into common at one preferred for one common.

- (15) (a) Prepare all necessary EPS figures. Assume all amounts are material.
- (5) (b) Assume that 5,000 preferred shares are converted to common. Give the appropriate journal entry.

- Q.4 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a) write (a) (i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer. I mark for each correct answer.
  - (a) On the first day of its fiscal year, Lessee Inc. leased certain property at an annual rental of \$100,000, receivable at the beginning of each year for ten years. The first payment was received immediately. The leased property, which is new, has an estimated useful life of 13 years and no residual value. Lessee's borrowing rate is 8%. The present value of an annuity due of \$1 payable at the beginning of the period at 8% for ten years is 7.24689. Lessee had no other costs associated with this lease. Lessee mistakenly treated the lease as an operating lease. By doing so, what was the effect on Lessee's net earnings during the first year of the lease?
    - i) No effect.
    - ii) Understated.
    - iii) Overstated.
    - iv) The effect depends on the method selected for income tax purposes.
    - v) None of the above.
  - (b) Your client constructed an office building at a cost of \$500,000. He sold this building to Jones at a material gain and then leased it back from Jones for a stipulated annual rental. How should this gain be treated by your client?
    - i) Recognized in full as an ordinary item in the year of the transaction.
    - ii) Recognized in full as an extraordinary item in the year of the transaction.
    - iii) Amortized, net of tax, as an adjustment of the rental cost, an ordinary item, over the life of the lease.
    - iv) Deferred and amortized over the estimated life of the building.
    - v) None of the above.
  - (c) The appropriate valuation of leased assets under an operating lease on the statement of financial position of a lessee is:
    - i) the absolute sum of the lease payments.
    - ii) the sum of the present values of the lease payments discounted at an appropriate rate.
    - iii) the market value of the asset at the date of the inception of the lease.
    - iv) zero.
    - v) none of the above.
  - (d) What are the three types of period costs that a lessee experiences with capital leases?
    - i) Lease expense, interest expense, amortization expense.
    - ii) Interest expense, amortization expense, executory costs.
    - iii) Executory costs, interest expense, lease expense.
    - iv) None of the above.

- (e) When measuring the present value of future rentals to be capitalized in connection with a lease, identifiable payments to cover taxes, insurance and maintenance should be:
  - i) included with future rentals to be capitalized.
  - ii) excluded from future rentals to be capitalized.
  - iii) capitalized, but at a different rate and recorded in a different account than future rentals.
  - iv) capitalized, but at a different rate and period from the rate and period used for future rentals.
  - v) none of the above.
- (f) Generally accepted accounting principles require that certain lease agreements be accounted for as purchases. The theoretical basis for this treatment is that a lease of this type:
  - i) is an example of form over substance.
  - ii) provides the use of the leased asset to the lessee for a limited period of time.
  - iii) must be recorded in accordance with the concept of cause and effect.
  - iv) effectively conveys all of the benefits and risks incident to the ownership of property.
  - v) none of the above.
- Q.5 Thelwell Company, a manufacturer of fine English riding saddles and equipment, is preparing financial statements on a General Price Level (GPL) basis. Selected data are as follows:
  - 1) GPL index numbers:

Date	Index
January 1, 1979	95
December 31, 1979	90
June 30, 1980	100
December 31, 1980	106
December 31, 1982	145
Average for 1983	152
December 31, 1983	155

- 2) Property, plant and equipment acquisition and depreciation data (from historical cost statements):
  - i) Land was acquired January 1, 1979, at a cost of \$45,000.
  - ii) Building was acquired December 31, 1979, at a cost of \$380,000; by year-end 1982 and 1983, the accumulated depreciation building account reflected balances of \$22,800 and \$30,400, respectively.
  - iii) Fixtures costing \$77,000 were acquired June 30, 1980; on these items, accumulated depreciation recorded by year-end 1982 and 1983 amounted to \$19,250 and \$26,950, respectively.
  - iv) Additional fixtures were bought in mid-year 1983 for \$30,000, when the index was 152; by year-end, depreciation recorded on the newest fixtures amounted to \$2,250.

#### 3) Monetary assets:

At the start of 1983, total monetary assets were \$87,000 and total monetary liabilities were \$31,900. At the end of 1983, total monetary assets were \$96,400 and total monetary liabilities were \$33,800.

#### REQUIRED:

In your examination booklet write down the numbers 1 to 15 as identification for each item given below, and compute the amounts that would appear on GPL financial statements. Show all computations so that part marks may be awarded.

- (a) On the GPL balance sheet as of December 31, 1983, the carrying values for each of the following items would be:
  - 1) Land
  - 2) Old fixtures (gross amount)
  - 3) New fixtures (gross amount)
  - 4) Accumulated depreciation (old fixtures)
  - 5) Accumulated depreciation (new fixtures)
  - 6) Total monetary assets
- (b) On the GPL income statement for the year ended December 31, 1983, amounts reported for each of the following items would be:
  - 7) Depreciation expense (new fixtures)
  - 8) Depreciation expense (old fixtures)
  - 9) Purchases (assume purchases of \$285,000 were made evenly throughout 1983)
  - 10) GPL gain or loss (based solely on starting and ending monetary items as an approximation)
- (c) If, as of December 31, 1983, comparative balance sheets were being prepared on a GPL basis and amounts related to the December 31, 1982 balance sheet were being restated, the restated amounts for each of the following items would be:
  - 11) Land
  - 12) Fixtures (gross amount)
  - 13) Monetary assets
  - 14) Monetary liabilities
  - 15) Accumulated depreciation (fixtures)

- 14 Q.6 The Dawn Company Ltd. started business on January 1, 1982. The following information covers its first year of operation. The company has a December 31 year-end.
  - (a) On January 1, 100,000 common shares were issued for \$2.50 each, and 50,000 preferred shares, dividend of \$1.00 per year, were issued for \$10.00 each.
  - (b) The company purchased machinery on January 1 for \$200,000, paying \$40,000 in cash and giving a 10% note for the balance. The note is payable in 5 equal instalments beginning December 31, 1982. The asset was depreciated on a 10% declining balance basis.
  - (c) Earnings per share for 1982 were \$3.25.
  - (d) The balance in retained earnings at the close of business on December 31 was \$250,000.
  - (e) Any dividends paid were paid on December 31.

#### **REQUIRED:**

Using the above information, prepare in good form a Statement of Changes in Financial Position, Working Capital Basis for 1982.

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**END OF EXAMINATION** 

# ACCOUNTING 222 FAMILIATION March, 1985 EXAMINER'S COMPUTES

#### General

Students had great difficulty with question 4. It also appeared that a number of students were running short of time, although answering all questions. Several perfect or near-perfect answers were received for each question.

#### Specific

Q.1 Generally well answered.

In parts (b) and (c) students had problems properly calculating deferred taxes. Often students did not deduct dividends before calculating income tax expense. It appeared that the figure used for deferred tax was a "plug" figure arising from improperly calculated income tax expense and a failure to understand the items which give rise to deferred taxes.

In part (d), virtual certainty, was not well understood or expressed. Students discussed income tax rules and Revenue Canada requirements and confused these with accounting concepts and reporting requirements.

Q.2 Parts (a) and (b) were reasonably well done. Some students missed or had difficulty recording the one month's interest accrued.

The main problem encountered in part (c) was with the calculation and recording of the remaining discount. Part (d) caused the most difficulty. Many students either did not read or did not understand the term "investee" and gave the investor's journal entries.

- Q.3 This was generally well answered. Students lost marks by failing to deduct the preferred dividend from earnings; calculating income tax on the preferred dividends; or in part (b), ignoring the contributed capital on the preferred stock.
- Q.4 Students had great difficulty with this question.
- Q.5 Points 1 to 9 were well handled. In part 10, few students indexed the \$7,500 change in monetary items during the year.

Points 11 to 15 were most often indexed to December 31, 1982 rather than to 1983. Perhaps students had trouble visualizing the 1982 items on a comparative balance sheet for 1983.

Q.6 This question was answered well. The main difficulty encountered was in calculating operating income.

## ACCOUNTING 222 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks					Time	e: 3 Hours
20	Q.1					
	(5)	(a)	19	82	19	983
		Accounting income Less dividend income Capital cost allowance Add depreciation Taxable income	(19	0,000 9,000) 5,000) 5,000 1,000	(2 (2 1	0,000 2,000) 0,000) 3,000 1,000
	(5)	(b)	1982		1983	
			DR	CR	DR	CR
		Income tax expense Income tax payable Deferred income tax	\$54,300	\$51,300 3,000	\$68,400	\$66,300 2,100
	(5)	(c)	1982		1983	
			DR	CR	DR	CR
		Income tax expense Income tax payable Deferred income tax	\$54,300	\$51,300 3,000	\$91,200	\$88,400 2,800

<sup>(5) (</sup>d) In order to recognize the benefit of an operating loss carry-forward in the year of the loss, virtual certainty must exist.

#### 20 Q.2

(5)	(a) Cash Discount on bonds Bonds payable Interest expense	\$138,367 2,800 \$140,000 1,167
(5)	(b) Investment in bonds Interest receivable Discount on bonds Cash	\$140,000 1,167 \$ 2,800 138,367
(5)	(c) Bonds payable Discount on bonds Common shares Premium on common	\$140,000 \$ 1,976 70,000 68,024

Amortization is over 10 years less one month, or 119 months: (119 less 35 months is the remaining discount, or \$1,976). Common shares issued: \$140,000/\$1,000 times 10, or 1,400.

140,000
36,976
\$ 1,976
70,000
105,000

Premium is 1,400 shares @ FMV of \$125 less par value of \$70,000.

#### 20 Q 3

#### (15) (a) Basic

Before extraordinary item (\$85,000 - \$6,000)/50,000 = \$1.58After extraordinary item (\$70,000 - \$6,000)/50,000 = \$1.28

Note that the preferreds are cumulative; therefore, the fact that dividends were not declared is ignored, or does not mean they are not payable.

#### Fully diluted

Before extraordinary item:

$$(\$85,000 - \$6,000 + \$6,000)/(50,000 + 10,000) = \$1.42$$

After extraordinary item:

$$(\$70,000 - \$6,000 + \$6,000)/60,000 = \$1.17$$

(5) (b) Preferred stock \$50,000 Contributed capital 15,000 Common stock \$65,000

- 6 Q.4 NOTE: 1 mark each.
  - (a) iii)
  - (b) iv)
  - (c) iv)
  - (d) ii)
  - (e) ii)
  - (f) i)
- 20 Q.5

=	\$ 73,421
=	119,350
=	30,592
=	41,773
=	2,294
=	96,400
=	2,294
=	11,935
=	290,625
=	58,900 7,648
	66,548 62,600
	3,948
=	73,421
=	119,350
=	93,000
=	34,100

14 Q.6

# The Dawn Company Ltd. Statement of Changes in Financial Position Working Capital Basis For the year ended December 31, 1982

	Source of Funds	2025 000			
	From operations	\$375,000	£105 000		
	Add depreciation	20,000	\$395,000		
	Issue of common shares		250,000	#1 145 000	
	Issue of preferred shares		500,000	\$1,145,000	
	Issue note for machinery				
	(not requiring working capital)			160,000	\$1,305,000
	Uses of Funds				
	Purchased machinery		\$40,000		
	Payment of instalment on note		32,000		
	Paid common dividends		75,000		
	Paid preferred dividends		50,000	\$197,000	
	Purchase of machinery -issue note				
	(not requiring working capital)			160,000	357,000
	Increase in Working Capital				\$_948,000
	Calculations:				
	Net income — preferred dividends		= \$3.25		
	100,000 common shares		_ \$5.25		
	Net income - \$50,000 = \$325,000				
٠.	Net income = \$375,000				
	Retained earnings at end (given)		\$250,000		
	Net income — deduct		375,000		
	Dividends paid		125,000		
	Preferred — deduct		50,000		
	Common dividends		\$75,000		

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**END OF SOLUTIONS** 

## ACCOUNTING 222 EXAMINATION June, 1985

Marks Time: 3 Hours

Q.1 The following condensed information is from the accounting records of Zeus Ltd.

	1984	1983
Cash	\$ 29,900	\$ 14,000
Accounts receivable	33,000	27,000
Inventory	30,000	40,000
Prepaid rent	1,600	1,000
Equipment (net)	110,500	88,000
	\$205,000	\$170,000
	-	
Accounts payable	\$ 15,500	\$ 23,400
Interest payable	1,500	0
Taxes payable	7,000	6,600
Dividends payable	5,000	0
Note payable*	8,000	0
Common stock \$10 par	110,000	100,000
Premium	12,000	10,000
Retained earnings	46,000	30,000
	\$205,000	\$170,000
0.1		
Sales	\$107,000	
Cost of sales	60,000	
Gross margin		\$ 47,000
Depreciation	7,500	
Interest	1,500	
Other		19,000
Income before tax		\$ 28,000
Tax expense		7,000
Net income		\$ 21,000

<sup>\*</sup>The note payable is due in five years. Shares were issued to acquire equipment.

- (10) (a) Prepare a schedule to calculate cash flow from operations.
- (5) (b) Prepare a schedule to calculate working capital from operations.
- (5) (c) Calculate the amount of non-working capital financing activity.

20 Q.2

(10) (a) Leases are classified for recording and reporting purposes as follows:

#### Standpoint of Lessee:

- i) Capital leases
- ii) Operating leases

## Standpoint of Lessor:

- i) Capital leases
  - sales type leases
  - direct financing leases
- ii) Operating leases

## **REQUIRED:**

Describe the characteristics of the above leases from the point of view of both the lessee and lessor.

- (10) (b) Explain in a short paragraph four of the following terms related to pension plans:
  - i) Normal cost
  - ii) Funded plan
  - iii) Vested benefits
  - iv) Actuarial gains and losses
  - v) Past service cost
- Q.3 Delphi Limited reports the following information for the year ended December 31, 1984. Pretax income before extraordinary items was \$150,000. Pretax extraordinary gain was \$40,000, and a pretax receipt of claims from litigation was \$20,000. Assume that the operating income of \$150,000 is subject to tax at 50% and the extraordinary gain is a capital gain. The litigation receipt is in settlement of a court case arising out of a fire at the company's warehouse in 1980 and is taxable at 50%. The company paid dividends of \$10,000, and the opening balance in retained earnings in 1984 was \$50,000.

- (8) (a) Prepare a partial Income Statement which calculates net income after income tax, taking into account intraperiod tax allocation.
- (8) (b) Prepare a Statement of Retained Earnings for 1984.
- (4) (c) How does *intraperiod* income tax allocation differ from *interperiod* tax allocation?

- 20 Q.4 The following information is provided for Adonis Limited.
  - For the year ended December 31, 1985, income before extraordinary items was \$2,500,000, and net income was \$3,000,000.
  - ii) At the beginning of 1985, there were 2,000,000 common shares outstanding. On September 30 of that year, an additional 120,000 common shares were issued.
  - iii) An issue of 10% convertible bonds with a principal amount of \$2,000,000 was outstanding during the year. Each \$1,000 bond is convertible into forty common shares.
  - iv) An issue of 5% convertible preferred shares, par \$100, in the amount of \$1,000,000 is also outstanding. Each preferred share is convertible into five common shares.
  - v) The income tax rate is 40%.
  - vi) The required dividends were paid to the preferred shareholders, and \$100,000 was paid to the common shareholders.

#### REQUIRED:

- (16) (a) Without regard to materiality, present the earnings per share figures required for presentation in the financial statements. Use three decimal places.
- (4) (b) Does the concept of materiality change your answer to part (a)? Explain.
- Q.5 Alvin, Marks, and Jensen shared profits and losses in a 4:1:3 ratio. The partners decided to liquidate. The inventory was sold for \$12,000, and the machinery was sold for \$11,000. The land was appraised at \$50,000 and was given to Jensen at this value as his share of the partnership, after his contributing cash for any difference between the balance in his capital account and the fair market value of the land. The remaining cash was distributed after the payment to creditors. Alvin and Marks were the only partners to receive cash from the liquidation. Pre-liquidation account balances were as follows:

Cash Inventory Machinery Land	\$ 1,000 10,000 8,000 40,000 \$59,000	Accounts Payable Alvin, Capital Marks, Capital Jensen, Capital	\$40,000 10,000 5,000 4,000 \$59,000
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#### REQUIRED:

Present the partnership liquidation entries.

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END OF EXAMINATION

# ACCOUNTING 222 EXAMINATION June, 1985 EXAMINER'S CUPULITYS

#### General

Questions one and four caused the most difficulty, although all questions were answered perfectly by at least some students. There were a large number of excellent papers.

#### Specific

Q.1 Students seemed to be answering a similar question from prior exams. The students who had problems provided statements of Changes in Financial Position and did not directly address the question's requirements.

The question asked for cash flow and working capital from "operations". Students either did not understand the significance of the word "operations" or did not read the question carefully. Very often the answers provided, calculated cash flow and working capital from all sources and for all applications rather than from operations only as requested.

- 2.2 This question was generally well answered, particularly part (b). A few students had the meaning of the terms lessor and lessee reversed. Common errors were:
  - (a) to omit the fact that at the inception of a direct financing lease, the fair value of leased property equals its carrying amount on the books of the lessor.
  - (b) to attempt to define operating leases by defining capital leases and then stating that any other leases are operating leases. However, it is necessary to define a term by stating what it is rather than what it is not.
- Q.3 This question was well answered. Common errors were:
  - (a) to include only half the capital gain in income or to deduct tax from the total rather than from half the capital gain.
  - (b) to include the prior period adjustment in income.
  - (c) to get the terms interperiod and intraperiod reversed.
  - (d) to state that intraperiod tax allocation applies to the income statement only.
  - (e) to miss the fact that only interperiod tax allocation involves recording and reporting on an accrual basis.

Continued...

Q.4 Although many students obtained full marks, this question was poorly answered overall. Difficulty in distinguishing between the concepts of materiality and antidilution and their application plagued students in both parts (a) and (b).

#### Other common errors were:

- (a) to deduct dividends on common stock before computing earnings per share.
- (b) to either miss the fact that the bond conversion was antidilutive or to assume that ignoring materiality means to ignore antidilution factors as well.
- (c) to deduct income tax from preferred dividends.
- $\text{Q.}\,\text{5}$  This question was answered extraordinarily well. Where there were errors, the most common were:
  - (a) to distribute the gain on realization on land to Alvin and Marks only.
  - (b) to fail to record gains on realization but rather to distribute the gains directly to the capital accounts as part of the entry recording the sale of an asset.

# ACCOUNTING 222 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks				Time: 3 Hours
20	Q.1 (10)	(a) Net income Add:		\$21,000
		Change in inventory Depreciation Change in interest Change in taxes	\$10,000 7,500 1,500 400	
		Deduct: Change in receivables Change in prepaids Change in payables Cash flow from operations	\$ 6,000 600 7,900	14,500 \$25,900
	(5)	(b) Net income Depreciation Working capital from operations	\$ 21,000 7,500 \$ 28,500	

(5) (c) An amount of \$12,000 was realized from issuance of common stock and was expended on equipment. An analysis of the equipment account is:

Beginning	\$ 88,000
Less depreciation	(7,500)
Add equipment purchased for cash	18,000
Equipment purchased share issue	12,000
Ending	\$110,500

20 O.2

(10) (a) A capital lease, from the point of view of the lessee, transfers to the lessee substantially all the benefits and risks of ownership.

A sales type lease, from the point of view of the lessor, transfers to the lessee substantially all the benefits and risks and, at the inception of the lease, the fair value of the leased property is greater than or less than its carrying amount. This gives rise to a gain or loss.

A direct financing lease, from the point of view of the lessor, transfers substantially all the benefits and risks to the lessee and, at the inception of the lease, the fair value of leased property is equal to its carrying amount on the books of the lessor.

An operating lease is one in which no benefits and risks (substantially none) of ownership are transferred.

NOTE: 21/2 marks each.

(10) (b) Normal cost. A pension plan may be initiated when the company is organized, in which case, persons upon initial employment would qualify for the pension plan. Subsequent to inception of the plan, only current (pension) cost would be incurred each year by the company. Normal cost is the annual cost of the plan for current services.

Funded plan. A company may, at its choice, establish a pension plan that is either fully funded, partially funded, or unfunded. At the one extreme is a fully funded plan, under which an employer makes payments periodically to an independent third party. The third party then assumes all pension obligations as they become due. At the other extreme is the unfunded plan, under which pension obligations to retired employees are paid by the company itself as the obligations become due.

Vested benefits. A pension plan which provides for the vesting of employer contributions permits an employee to leave the employ of a given employer and not forego the proportion of the accumulated pension contributions which were paid into the plan by the employer. Vesting is the irrevocable passing over to an employee of rights either to pension benefits or to withdrawal privileges as regards employer contributions.

Actuarial gains and losses. Actuarial assumptions used in estimating pension funding and expenses are based on estimates of future events. As time passes, actual events usually do not coincide with estimates. As actual conditions change, assumptions must be revised. Therefore, from time to time, it is necessary to reflect actual experience and to revise assumptions to be used in future. These revisions cause actuarial gains or losses which must be reflected in the accounting records.

Past service cost. A pension plan may be initiated some years after the company was organized. In this case, present employees, as well as new employees, would qualify for the plan. Past service cost is the pension cost associated with employee service performed for the company prior to the inception of the plan.

NOTE: 21/2 marks each for any four of the above to a maximum of 10.

20	Q.3 (8)	(a) Pretax operating income	\$150,000	
		Less tax at 50%	75,000	\$ 75,000
		Extraordinary item Less tax at 25% Net income after tax	40,000 10,000	30,000
	(8)	(b) Retained earnings as reported Prior period adjustment Less tax at 50%	\$ 20,000 10,000	\$ 50,000
		Beginning balance as restated Income as above Less dividends		\$ 60,000 105,000 (10,000)

Retained earnings ending balance

(4) (c) Intraperiod income tax allocation is the generally accepted way of reporting the specific income tax expense (or tax saving) associated with income or loss from: (i) normal recurring operations; (ii) extraordinary items; (iii) disposal of a segment of a business; and (iv) prior period adjustment that have a tax effect. Interperiod income tax allocation differs in that it involves both recording and reporting income tax expense on an accrual basis and recording deferred taxes.

20	Q.4			
	(16)	(a)		

	Common	Before extraordinary	Net income
Earnings	0	\$2,500,000	\$3,000,000
Dividends	2 020 000 (1)	50,000	50,000
	2,030,000 (1)	\$2,450,000	\$2,950,000
Basic EPS Fully diluted		1.207	1.453
Earnings as above	2,030,000	\$2,450,000	\$2,950,000
Preferred conversion (2)	50,000	50,000	50,000
	2,080,000	\$2,500,000	\$3,000,000
		1.201	1.442

**Adonis Limited** 

- (1) 2,000,000 + 3/12 (120,000)
- (2) The bond conversion is antidilutive.
- (4) (b) Fully diluted earnings per share would not be reported because it is not material in this case.

\$155,000

20		Q	.5

Cash Inventory Loss or Gain from Realization*	\$12,000	\$10,000 2,000
Cash Machinery Loss or Gain from Realization*	\$11,000	\$ 8,000 3,000
Land Loss or Gain from Realization*	\$10,000	\$10,000
Loss or Gain from Realization* Alvin — Capital Marks — Capital Jensen — Capital	\$15,000	\$ 7,500 1,875 5,625
Cash (\$50,000 - \$9,625) Jensen	\$40,375	\$40,375
Jensen — Capital Land	\$50,000	\$50,000
Accounts Payable Cash	\$40,000	\$40,000
Alvin — Capital Marks — Capital Cash	\$17,500 6,875	\$24,375

<sup>\*</sup>Or liquidation account.

<u>100</u>

**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### COST ACCOUNTING 311 EXAMINATION December, 1984

Marks Time: 3 Hours

11 Q.1 The Apricot Co. Ltd. spends \$99,200 on raw fruit, and then processes this fruit at a cost of \$80,000. As a result of this process, three products are produced:

5,000 cases of jam 8,000 cases of canned fruit 2,000 cases of juice

In order to make these products saleable, a further \$20,000 is spent on processing jam; \$40,000 on canned fruit; and \$15,000 on juice.

Sales prices per case are:

Jam \$21 Canned fruit \$18 Juice \$25

The Apricot Co. Ltd. uses the relative sales value method of allocating joint costs.

#### REQUIRED:

- (9) (a) Compute the cost per case for each product for inventory valuation purposes.
- (2) (b) Another company has offered to buy all the output of juice at the split-off point for \$15 per case. Should this offer be accepted? (Show computations.)
- 10 Q.2 The Banana Co. Ltd. manufactures a single product with the following variable unit costs:

\$16
21
8
\$45

Fixed overhead is expected to total \$800,000. Sales and production for 1985 have been budgeted at 50,000 units. The product is sold at a price of \$100 per unit. Variable selling expenses average 12% of sales revenue. Fixed selling, administrative and research and development costs are expected to total \$490,000.

- (3) (a) What is the company's breakeven point for 1985 in units?
- (7) (b) Would it be advisable for the company to raise its selling price to \$110 if such a move would result in a reduction in sales of 10,000 units? What effect, if any, would such a move have on the breakeven point in units?

21 Q.3 The Cherry Co. Ltd. uses a standard cost system in its single manufacturing department and has developed the following standard costs:

$6 \text{ sheets} \times \$ .50$	\$ 3.00
1 hour × \$6.00	6.00
1 hour × \$4.00	4.00
1 hour × \$2.00	2.00
	\$15.00
	1 hour × \$6.00 1 hour × \$4.00

Denominator activity is 35,000 units per month. All material is added at the beginning of the process. Conversion costs are added uniformly throughout the process. Inspection takes place when the units are 90% complete. The process is designed so that defective units will equal 5% of the number of units which pass inspection.

#### Actual data for the month of September follow:

- 1) Beginning inventory 10,000 units, 60% complete.
- 2) Units started during the month 32,300.
- 3) Material purchased 200,000 sheets at \$.48.
- 4) Material used 195,000 sheets.
- 5) Direct labor payroll \$234,000 (36,000 hours).
- 6) Variable overhead \$140,000.
- 7) Fixed overhead \$71,000.
- 8) Abnormal spoilage 300 units.
- 9) Ending inventory 15,000 units, 95% complete.

#### REOUIRED:

#### Calculate:

- (6) (a) Equivalent production.
- (2) (b) Cost of abnormal spoilage.
- (5) (c) Cost of ending inventory of work in process.
- (4) (d) Materials price and quantity variances.
- (4) (e) Variable overhead spending and efficiency variances.

16 Q.4 The Peach Co. Ltd. produces one product with the following standard costs per unit:

Material	\$ 3.00
Direct labor	5.00
Variable overhead	2.60
	\$ 10.60

The monthly fixed overhead budget is \$240,000.

Normal monthly production of 100,000 units has been used as the denominator under absorption costing.

In preparing month-end statements variances are treated as period costs.

The following information is available for the month of October, 1984:

beginning inventory	15,000 umts	
Production	90,000 units	
Sales at \$20 per unit	95,000 units	
Total variable variances	\$ 10,000	(unfavorable)
Fixed overhead	250,000	·
Variable selling expenses	133,000	
Fixed selling and		
administrative expenses	285,000	

- (8) (a) Prepare a variable costing income statement (in good form) for the month of October, 1984.
- (3) (b) What would the net income have been under absorption costing? (Statement not required.)
- (2) (c) What would the net income have been under variable costing if the denominator were changed to 120,000 units (practical capacity)? (Statement not required.)
- (3) (d) What would the net income have been under absorption costing with a denominator of 120,000 units? (Statement not required.)

Q.5 The following information was selected from the Orange Co. Ltd.'s accounting records for 1983. Orange Co. Ltd. uses a job cost system.

#### **Account Balances**

	January 1	December 31
Direct materials	7,000	15,000
Work in process	?	?
Finished goods	20,000	40,000
Accounts payable	12,000	7,000
Accrued factory payroll	9,000	14,000
Sales	0	280,000

#### Other Information:

- 1) Overhead was applied at a rate of 75% of direct labor cost. Over-or under-applied overhead has not yet been closed to cost of goods sold.
- Actual overhead costs incurred during the year totaled \$78,000, including \$30,000 for indirect labor.
- 3) Work in process inventory at December 31 consists of one job only. To date, materials of \$3,000, direct labor of \$4,000 and an appropriate amount of overhead have been charged to this job.
- 4) Cash disbursements during the year included \$63,000 for accounts payable and \$125,000 for accrued factory payroll.
- 5) The sales price is arrived at by adding a 40% mark-up to normal cost. All sales are on account.
- 6) The accounts payable account is used for direct materials purchases only.

#### REQUIRED:

Calculate the following (show T-accounts or other computations):

- (2) (a) Materials purchased
- (2) (b) Materials used
- (3) (c) Direct labor cost
- (2) (d) Overhead applied
- (3) (e) Cost of goods sold
- (2) (f) Cost of goods manufactured
- (2) (g) December 31 balance, work in process
- (2) (h) January 1 balance, work in process
- (2) (i) Amount of over-or under-applied overhead.

20

#### 12 Q.6 The following historical information applies to Pear Co. Ltd.:

	11,000 units	18,000 units
Factory supplies	\$ 5,500	\$ 9,000
Direct labor	88,000	144,000
Taxes on factory building	2,500	2,500
Indirect labor	53,000	74,000
Heat, light and power	2,700	4,100
Salesmen's commissions	11,000	18,000
Insurance on factory building		
and equipment	800	800
Freight out	1,100	1,800
Depreciation on factory building		
and equipment	17,000	17,000

#### REQUIRED:

- (10) (a) Prepare a flexible overhead budget for 14,000 units, showing variable and fixed costs separately.
- (2) (b) Express this flexible overhead budget as a formula.
- Q.7 In your examination booklet, list the numbers of your answers to each part of the following multiple-choice questions. In some parts, there may be more than one answer.

#### NOTE: I mark for each part.

- (a) Compared with the determination of gross profit, the determination of contribution margin treats the following costs and expenses differently:
  - i) direct labor cost.
  - ii) variable selling expense.
  - iii) fixed factory overhead.
  - iv) fixed administrative expense.
- (b) The quantity of the safety stock plus the average usage during the lead time is equal to:
  - i) economic order quantity.
  - ii) optimum inventory balance.
  - iii) average inventory size.
  - iv) reorder point.
- (c) If all bookkeeping is up-to-date, the balance in the Accrued Payroll account may be:
  - i) zero.
  - ii) either debit or credit.
  - iii) debit only.
  - iv) credit only.

10

- (d) A cash budget should exclude:
  - i) accrued interest earned on temporary investments.
  - ii) purchases of office equipment on account.
  - iii) dividends paid.
  - iv) bad debts expense.
- (e) A company needs to triple its \$3,000 cash balance during a forthcoming budget period. Budgeted cash receipts and disbursements are \$84,500 and \$98,000, respectively. The amount to be borrowed during the budget period is:
  - i) \$19,500.
  - ii) \$22,500.
  - iii) zero.
  - iv) some other amount.
- (f) The main purpose for determining the behavior patterns of costs is:
  - i) to develop precise mathematical equations.
  - ii) to assist in making cost predictions.
  - iii) to correct errors in recording historical costs.
  - iv) to evaluate actual performance.
- (g) After a service department's cost has been allocated, no other service department cost may be charged back to it by:
  - i) the direct method.
  - ii) the net realizable value method.
  - iii) the reciprocal method.
  - iv) the step method.
- (h) Good examples of costs that are not clearly assignable to a segment except on some questionable basis would include:
  - i) institutional advertising.
  - ii) depreciation on equipment.
  - iii) direct labor.
  - iv) annual fees for independent audits.
- (i) Costs that would not be relevant to decisions concerning replacement of equipment include:
  - i) future depreciation expense on old equipment.
  - ii) salvage value of old equipment.
  - iii) salvage value of new equipment.
  - iv) future depreciation expense on new equipment.
- (j) When a direct labor efficiency variance is prorated to inventories and cost of goods sold, the accounts affected include:
  - i) stores.
  - ii) work in process.
  - iii) finished goods.
  - iv) accrued payroll.

100

**END OF EXAMINATION** 

#### CERTIFIED CENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## COST ACCOUNTING 311 MINHAFION December, 1984 EXAMINER'S COMMENTS

#### General

No major problems were apparent.

#### Specific

- Q.1 (a) Common errors included:
  - joint costs allocated on some basis other than relative sales value.
  - separable processing costs not included in the inventory cost calculation.
  - cost per case not computed.
  - (b) Joint costs were irrelevant to this decision and should not have been included in the calculation.
- Q.2 (a) Most students performed well in answering this question. Common errors included ignoring the \$490,000 of fixed costs, and either omitting the variable selling expenses or incorrectly computing the amount.
  - (b) There were many very good responses. Omission of a recommendation was a very common error. Other students did not compute the new breakeven point or omitted to comment on the effect on profit.
- Q.3 (a) This question was generally handled well. Common errors included the incorrect treatment of beginning inventory and normal spoilage, and lack of recognition of the different levels of completion for materials and conversion costs.
  - (b) Many answers used actual costs instead of standard costs.
  - (c) Again, many answers used actual costs instead of standard costs. Many students neglected to add a share of normal spoilage.
  - (d) This part was generally handled very well on most papers even when parts (a) to (c) were incorrect.
  - (e) The variable overhead variances were not dealt with as well as were the materials variances.

Continued...

- Q.4 Students tended to do well in part (a) but did not follow through correctly in parts (b), (c) and (d). Some common errors were:
  - (a) ignoring beginning and/or ending inventories;
    - adding instead of subtracting various items;
    - omitting the contribution margin;
    - using an incorrect amount for fixed overhead;
    - using an absorption costing format.
  - (b) adding rather than subtracting the difference in income.
  - (c) failing to state the dollar amount of the net income.
  - (d) adding rather than subtracting the difference in income.
- Q.5 This question was well handled by most students. The most frequent errors were:
  - inaccurately calculating the Cost of Goods Sold (this should have been done by dividing the sales figure by 140%);
  - incorrect identification of the Cost of Goods Manufactured (many answers gave total manufacturing cost instead);
  - closing under-applied overhead to Cost of Goods Sold, when there was no instruction to do so.
- Q.6 This question was not handled very well. Even though the question specified that variable and fixed costs were to be shown separately, many answers did not split the mixed costs into their variable and fixed components. Another frequent error was the inclusion of non-overhead costs. In part (b), many answers did not arrive at a single formula.
- Q.7 This question was well answered by most students.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# COST ACCOUNTING 311 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks

						* * * * * * * * * * * * * * * * * * * *	ic. 5 Hours
11	Q.1 (9)	(a)		Jam	Fruit	Juice	Total
			Production, in cases	5,000	8,000	2,000	
			Sales price per case	\$ 21	\$ 18	\$ 25	
			Sales value Further processing	\$105,000 20,000	\$144,000 40,000	\$ 50,000 15,000	\$299,000 75,000
			Relative sales value	\$ 85,000	\$104,000	\$ 35,000	\$224,000
			Joint costs	68,000	83,200	28,000	179,200
			Total cost Cost per case	88,000 17.60	123,200 15.40	43,000 21.50	254,200
	(2)	(b)		Per Unit	Total		
			Incremental revenue	\$10.00	\$20,000		
			Incremental cost	7.50	15,000		
			Difference	\$ 2.50	\$ 5,000		

Conclusion: No, this offer should be rejected.

Time: 3 Hours

(3) (a) Breakeven point = 
$$\frac{800,000 + 490,000}{100 - 45 - (.12 \times 100)}$$
$$= \underbrace{30,000}_{\text{units}} \text{ units}$$

(7) (b) Profit at \$100 sales price:

$$50,000 (100 - 45 - 12) - 800,000 - 490,000 = $860,000$$

Profit at \$110 sales price:

$$40,000 (110 - 45 - 13.20) - 800,000 - 490,000 = $782,000$$

Conclusion: Increasing the price to \$110 would not be advisable since the profit would be \$78,000 lower.

Breakeven point = 
$$\frac{800,000 + 490,000}{110 - 45 - 13.20} = \frac{24,904}{2}$$
 units

The breakeven point would be 5,096 units lower.

Q.3 (6)	(a)		Physical Flow	Material	Conversion Costs	
		Beginning inventory Started	10,000 32,300 42,300			
		Finished: Beginning inventory Current Normal spoilage Abnormal spoilage Ending inventory	10,000 15,000 2,000 300 15,000 42,300	0 15,000 2,000 300 15,000 32,300	4,000 15,000 1,800 270 14,250 35,320	
(2)	(b)	Abnormal spoilage: 300 × \$ 3.00 270 × \$12.00		,	\$ 900 3,240	\$ 4,140
(5)	(c)	Normal spoilage: 2,000 × \$ 3.00 1,800 × \$12.00			\$ 6,000 21,600	\$ 27,600
		Ending inventory: 15,000 × \$ 3.00 14,250 × \$12.00 15,000 × \$27,600 40,000			\$ 45,000 171,000 10,350	\$226,350
(4)	(d)	Materials price: 200,000 (.5048)				\$4,000 F
		Materials quantity: .50 (195,000 - 193,800)				\$ 600 U
(4)	(e)	Variable overhead spending: 140,000 - 144,000				\$4,000 F
		Variable overhead efficiency: 144,000 - 141,280				\$2,720 U

21

#### Peach Co. Ltd. Income Statement For the month of October, 1984

	Sales	\$1,900,000
	Variable costs: Standard variable manufacturing costs Variable variances (unfavorable) Selling expenses	\$1,007,000 10,000 133,000 \$1,150,000
	Contribution margin	\$ 750,000
	Fixed costs: Overhead Selling and administrative  Net income	\$ 250,000 285,000 <b>\$</b> 535,000 <b>\$</b> 215,000
(3) (b	) Difference in income: $\frac{240,000}{100,000} (95,000 - 90,000) =$	\$ 12,000
	Absorption costing income	\$ 203,000
(2) (0	Same as part (a).	\$ 215,000
(3) (d	) Difference in income: $\frac{240,000}{120,000} (95,000 - 90,000) =$	\$ 10,000
	Absorption costing income	\$ 205,000

20 Q.5

(2)(3)(2)(3)

(2)

(2)

(2)

(2)

(g) 10,000

(h) 5,000

(i) 3,000 under-applied

Direct Ma	terials	Work in I	Process	Finished	Goods
7,000 <u>58,000</u> <u>65,000</u> <u>50,000</u> 15,000	50,000	5,000 50,000 100,000 75,000 230,000 220,000 10,000	220,000	20,000 220,000 240,000 200,000 40,000	200,000
Cost of Goo	ods Sold	Overhead	Control	Overhead	Applied
200,000		30,00 <u>0</u> 78,000			75,000
Accounts F	Payable	Accrued Fact	ory Payroll	Sale	·s
63,000	12,000 58,000 70,000 63,000 7,000	125,000	9,000 100,000 30,000 139,000 125,000 14,000		280,000
(a) 58,000					
(b) 50,000					
(c) 100,000					
(d) 75,000					
(e) 200,000					
(f) 220,000					

12	Q.6	
	(10)	(a)

#### Pear Co. Ltd. Flexible Overhead Budget

Variable overhead: Factory supplies (\$ .50) Indirect labor (\$3.00) Heat, light and power (\$ .20) Total variable overhead	\$ 7,000 42,000 
Fixed overhead: Taxes on factory building Indirect labor Heat, light and power Insurance on factory building and equipment Depreciation on factory building and equipment	\$ 2,500 20,000 500 800
Total fixed overhead Total overhead	\$40,800 \$92,600

- (2) (b) \$40,800 + \$3.70/unit
- 10 Q.7 NOTE: 1 mark for each part.
  - (a) ii), iii)
  - (b) iv)
  - (c) i), ii)
  - (d) i), ii), iv)
  - (e) i)
  - (f) ii)
  - (g) i), iv)
  - (h) i), iv)
  - (i) i)
  - (j) ii), iii)

<u>100</u>

**END OF SOLUTIONS** 

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### COST ACCOUNTING 311 EXAMINATION March, 1985

Marks Time: 3 Hours

8 Q.1 The Rose Co. Ltd. produces and sells a single product. The following information has been selected from Rose's budget for 1986:

#### Standard Cost per Unit

Direct materials	\$ 8.00
Direct labor	14.00
Variable overhead	4.00
Fixed overhead	10.00
	\$36.00

Denominator activity 40,000 units Variable selling expenses \$ 6.00/unit Fixed administrative expenses \$200,000

- (3) (a) At a sales price of \$52.00, what would the breakeven point in units be?
- (5) (b) How much could the Rose Co. afford to spend on advertising, if the price were increased to \$60.00, with the hope of making a profit of 20% of sales, operating at the denominator activity level?

18 Q.2 The Tulip Co. Ltd. produces a single product with the following standard costs:

Materials	5 lb. × \$1.95	\$ 9.75
Direct labor	2 hr. × \$5.00	10.00
Variable overhead	2 hr. × \$1.50	3.00
Fixed overhead	2 hr. × \$2.00	4.00
		\$26.75

During the month of January:

- 1) 60,000 pounds of material were purchased for \$120,000.
- 2) Although monthly production was expected to be 10,000 units, during January only 9,600 units were produced.
- 3) 50,000 pounds of material were issued to production.
- 4) Direct labor payroll totaled \$104,500 for 19,000 hours worked.
- 5) Variable overhead costs incurred were \$29,000.
- 6) Fixed overhead costs incurred were \$41,000.

- (16) (a) Compute two variances for each type of manufacturing cost.
- (2) (b) What does the production volume variance represent?

Q.3 The Daffodil Co. Ltd. has obtained the following costs and other data pertaining to one of its raw materials:

Working days per year	250 days
Normal use per day	400 units
Maximum use per day	600 units
Minimum use per day	100 units
Lead time	8 days
Cost of placing one order	\$20.00
Carrying cost per unit per year	\$ 1.00

You may need to use the following formula:

$$\sqrt{\frac{2AP}{S}}$$

#### REQUIRED:

Compute the following:

- (3) (a) Economic order quantity.
- (1) (b) Safety stock.
- (1) (c) Reorder point.
- (1) (d) Normal maximum inventory.
- (1) (e) Absolute maximum inventory.
- (1) (f) Average inventory.

Q.4 The Zinnia Co. Ltd. has two production and two service departments. Budgeted monthly costs and other operating data are as follows:

	General Plant	Maintenance	Process A	Process II
Direct labor/hours Machine hours Maintenance hours			30,000 60,000 1,800	38,500 30,000 1,200
Direct labor/cost			\$162,000	\$218,500
Indirect labor cost				
Variable Fixed	\$ 0 13,900	\$6,000 1,500	5,000 3,000	10,000 4,000
Indirect material:				
Variable Fixed	0 1,500	800 400	2,500 0	7,000 0
Miscellaneous overhead: Fixed	000,1	1,500	4,000	4,000

It is assumed that the other three departments benefit from general plant services in relation to their total budgeted labor costs.

#### REQUIRED:

- (8) (a) Develop a flexible overhead budget formula for each department using total labor cost as the denominator.
- (5) (b) Allocate the service department costs to the production departments using the step method.
- (2) (c) Develop overhead application rates for the production departments using machine hours as the denominator for Process A and direct labor hours as the denominator for Process B.

15

10 Q.5 The Dahlia Co. Ltd. is a manufacturing company whose payroll includes employees engaged in manufacturing, selling and administrative functions. The payroll for the month of February 1985 was as follows:

Direct labor	\$ 50,000
Indirect labor	20,000
Selling	16,000
Administrative	14,000
	\$100,000

The company incurs the following expenses related to payroll:

1) Canada Pension Plan	1.8%
2) Unemployment Insurance	3.22%
3) Workers' Compensation (factory employees only)	4.0%
4) Medical Plan	1.0%
5) Company Pension Plan	6.0%

- (7) (a) Prepare the journal entry required on February 28 to record payroll expenses.
- (3) (b) What alternative allocation of payroll expenses could you have made? Which method is theoretically superior?

9 Q.6 The following information has been compiled by the Hyacinth Co. Ltd. during its budgeting process:

Inventory policy requires that stock at the end of each month be 25% of next month's sales requirements, provided this does not exceed 4,000 units.

Purchases of inventory for resale are spread evenly throughout the month.

All suppliers offer a discount of 2/10, n/30. Hyacinth takes advantages of all discounts.

Average cost per unit is expected to be \$30.00 before discounts.

The sales forecast includes:

	Sales in Units
April	20,000
May	18,000
June	14,000
July	8,000
August	9,000

#### REQUIRED:

What are the budgeted June cash disbursements related to purchases?

Q.7 The Jonquil Co. Ltd. uses a weighted average process costing system in accounting for its one product. The factory is divided into two departments. Units completed in Department 1 are transferred to Department 2. Units completed in Department 2 are transferred to Finished Goods inventory.

At the beginning of February there were 3,000 units in process in Department 2, and they were estimated to be 50% complete. Costs of \$17,450 transferred in and \$14,625 for labor and overhead had been allocated to these units at the end of January. During the month of February, 8,000 units were received from Department 1 at a cost of \$48,000. Costs incurred during February were \$15,750 for materials and \$19,695 for labor and overhead.

During February, 9,000 units were transferred to Finished Goods. The 1,500 units still in process in Department 2 were estimated to be 60% complete. Inspection takes place at the end of the process in Department 2. Materials are then added to the good units. A spoilage rate of 5% of good output is considered normal.

- (15) (a) Prepare a Cost of Production Report for Department 2 for February.
- (5) (b) Compute equivalent production figures for Department 2 for February using the F1FO method.

12 Q.8

- (3) (a) Distinguish between job-order and process-cost accounting. For each system, give at least two examples of industries for which the specified system would be appropriate.
- (3) (b) Describe the advantages and disadvantages of variable (direct) costing.
- (3) (c) How do the following terms relate to accounting systems?

Motivation Responsibility Goal Congruence

(3) (d) Discuss the kinds of costs that are generally relevant to decision-making.

100

**END OF EXAMINATION** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMADA

## COST ACCOUNTING 311 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### General

The pass rate was relatively low on this examination. Students writing this examination as a supplemental did not appear to have improved on their original performance.

#### Specific

- Q.1 This question was generally well done.
  - (a) A common error was to leave out the \$400,000 of fixed overhead cost or to include it as variable at \$10/unit.
  - (b) A common error was the failure to use the denominator level in calculating the 20% profit.
- Q.2 (a) This question was well answered by the majority of students.

  The only difficulty was encountered by those who were unfamiliar with the proper format for determining overhead variances or who otherwise did not understand how such variances were arrived at.
  - (b) This part was poorly answered by most students. The most common error was in not stating that the production volume variance relates to fixed overhead and that, if production is less than expected, fixed overhead will be underabsorbed.
- Q.3 Many students did not seem to be able to handle this question and included incorrect data in responding to all parts.
- Q.4 (a) This part of the question was very poorly done. A necessary first step was to total the variable and fixed overhead costs for each department. In turning these into budget formulas, many students treated fixed costs as if they were variable.
  - (b) This part was better done than part (a) but many errors were made. Direct labor cost was often included. Inappropriate allocation bases were used. The direct method was used rather than the step method.
  - (c) Many students received full marks for this part as long as their answers correctly followed on from their answers to part (b).

Continued ...

- Q.5 (a) This question was quite well answered by most students.

  Common errors included: inaccurate calculations; inappropriate account names; incorrect calculation of workers compensation payable; and improper allocation of overhead between work in process and overhead control.
  - (b) Many students did not realize that overhead, in the form of fringe benefits on direct labor, should be charged to the work in process account, particularly if the amounts were significantly large.
- Q.6 Many students failed to recognize that a third of the May purchases would be paid for in June (and a third of June purchases in July). Some students made errors in arithmetic, such as a \$6.00 rather than a \$0.60 per unit discount. Some students ignored the 4,000 limit on inventory.
- Q.7 (a) Some of the common errors were:
  - no column for units transferred-in;
  - confusion of transferred-in and materials costs;
  - failure to identify normal and abnormal spoilage;
  - use of the FIFO method;
  - incorrect calculation of equivalent units for material;
  - failure to show sub-totals for costs of finished units and ending inventory.
  - (b) The main error in this part was using the weighted average rather than the FIFO approach.
- Q.8 (a) This part was generally well done. However, some students did not give clear examples.
  - (b) This part was not answered specifically enough, particularly with regard to the disadvantage.
  - (c) Answers were not specific enough.
  - (d) Answered correctly but often too narrowly.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### **COST ACCOUNTING 311 EXAMINATION** March, 1985 SUGGESTED SOLUTIONS

Marks	Time: 3 Hours

8 Q.1 (3) (a) Breakeven point = 
$$\frac{400,000 + 200,000}{52 - 32}$$

Breakeven point = 30,000 units

$$A = \underline{\$40,000}$$

18

#### Overhead:

Actual	Budget Actual	Budget Standard	Standard Applied
29,000 41,000	28,500 40,000	28,800 40,000	28,800 38,400
Spending	Effi	ciency	
500 U 1,000 U			Volume 
	29,000 41,000 Spending 500 U	Actual Actual 29,000 28,500 41,000 40,000  Spending Effic 500 U 300	Actual         Actual         Standard           29,000         28,500         28,800           41,000         40,000         40,000           Spending         Efficiency           500 U         300 F

\$1,000 F

(b) The \$1,600 unfavorable production volume variance arose because 9,600 units (2) were produced during January instead of 10,000 units. The company produced 400 units less than they expected when they set their fixed overhead rate at \$4.00 a unit. Hence, \$1,600 of fixed overhead was not absorbed by the January production.

Q.3 (3) (a) 
$$\sqrt{\frac{2 \times 250 \times 400 \times 20}{1}}$$
 =  $2,000$ 

(1) (b) 
$$8 (600 - 400) = 1,600$$

(1) (c) 
$$1,600 + (8 \times 400)$$
 =  $4,800$ 

(1) (d) 
$$1,600 + 2,000 = 3,600$$

(1) (e) 
$$3,600 + 8 (400 - 100) = \underline{6,000}$$

(1) (f) 
$$1,600 + \frac{2,000}{2}$$
 =  $\frac{2,600}{}$ 

15	Q.4	
	(8)	(a

a)	General Plant	Maintenance	Process A	Process
Variable overhead: Indirect labor Indirect material Total variable	0 0 0	6,000 800 6,800	5,000 2,500 7,500	10,000 7,000 17,000
Fixed overhead: Indirect labor Indirect material Miscellaneous Total fixed	13,900 1,500 1,000 16,400	1,500 400 1,500 3,400	3,000 0 4,000 7,000	4,000 0 4,000 8,000

#### Formulas:

General Plant \$16,400

\$3,400 + 90.7% of labor cost Maintenance

Process A \$7,000 + 4.4% of labor cost

\$8,000 + 7.3% of labor cost Process 1

	(5)	(b)		General Plant	Maintenance	Process A	Process H
			Total overhead General Plant (4% of labor cost)	16,400 16,400	10,200 300 10,500	14,500 6,800	25,000 9,300
			Maintenance (\$3.50 per hour)		10,500	6,300 27,600	4,200 38,500
	(2)	(c)	Denominator			60,000	38,500
			Overhead rate			<u>\$.46</u>	\$1.00
10	Q.5 (7)	(a)	Work in process (1.1602 × 50,000)  Overhead control (1.1602 × 20,000)  Selling expense control (1.1202 × 16,000)  Administrative expense of (1.1202 × 14,000)  Accrued payroll  Canada pension plan p			58,010.00 23,204.00 17,923.20 15,682.80	(or 50,000) (or 31,214) 100,000.00
			(.018 × 100,000) Unemployment insura:	nce payable			1,800.00
			(.0322 × 100,000) Workers' compensatio				3,220.00
			$(.04 \times 70,000)$	ii payable			2,800.00
			Medical plan payable (.01 × 100,000) Company pension plan	navahle			1,000.00
			(.06 × 100,000)	Payaute			6,000.00

(3) (b) I have charged fringe benefits on direct labor to Work in Process. An alternative method is to charge fringe benefits on direct labor to Overhead Control. Theoretically, they should be charged to Work in Process, particularly when the percentage is significantly large.

### OR

I have charged fringe benefits on direct labor to Overhead Control. An alternative method is to charge fringe benefits on direct labor to Work in Process. Theoretically, they should be charged to Work in Process, particularly when the percentage is significantly large.

9 Q.6

	May	June
Beginning inventory	4,000	3,500
Purchases	17,500	12,500
	21,500	16,000
Sales	18,000	14,000
Ending inventory	3,500	2,000

June cash disbursements:

$$1/3 \times 17,500 \times 30 \times .98 =$$
 171,500  
 $2/3 \times 12,500 \times 30 \times .98 =$  245,000  
416,500

20	Q.7 (15)	(a)		Physcial Flow	Transferred In	Materials	Conversion Costs
			Beginning inventory Received from Department	3,000 1 8,000			
				11,000			
			Finished Normal spoilage Abnormal spoilage Ending inventory	9,000 450 50 1,500 11,000	9,000 450 50 1,500 11,000	9,000	9,000 450 50 900 10,400
			Costs:	Total			
			Beginning inventory Current	32,075 83,445 115,520	17,450 48,000 65,450	15,750 15,750	14,625 19,695 34,320
			Unit costs	11.00	5.95	1.75	3.30
			Costs accounted for:				
			Transferred to Finished Goo 9,000 × \$11.00	ods:			99,000.00
			Normal spoilage 450 × \$5.95 450 × \$3.30			2,677.50 1,485.00	4,162.50
			Abnormal spoilage 50 × \$5.95 50 × \$3.30			297.50 165.00	103,162.50 462.50
			Ending inventory 1,500 × \$5.95 900 × \$3.30			8,925.00 2,970.00	11,895.00 115,520.00
	(5)	(b)		Physical Flow	Transferred In	Materials	Conversion Costs
			Finished: Beginning inventory Current Normal spoilage Abnormal spoilage Ending inventory	3,000 6,000 450 50 1,500 11,000	6,000 450 50 1,500 8,000	3,000 6,000	1,500 6,000 450 50 900 8,900

12 Q.8

- (3) (a) With unique products manufactured to order, it is usually possible, and often desirable, to make a separate accumulation of the costs which relate to each job (job-order costing). Examples include construction, printing, equipment manufacturing and shipbuilding. Where large quantities of identical units are produced with no particular customer in mind, it is usually quite satisfactory to compute an average unit cost (process costing). Examples include petroleum, forestry, food processing, mining and meat packing.
- (3) (b) Variable costing has three significant advantages:
  - for product costing purposes, fixed overhead is not treated as if it were variable and no production volume variance is produced;
  - 2) profit is related to sales rather than to production;
  - 3) variable costing figures are appropriate for cost-volume-profit analysis. The single disadvantage of variable costing is an important one; inventory is undervalued in that the fixed overhead component is ignored.
- (3) (c) Accounting systems exist primarily to improve the collective decisions within an organization. It is important that individual managers are motivated to assist in the achievement of the organization's goals. One feature which the system must contain in order to ensure goal congruence is responsibility accounting; that is, managers should only be held responsible for costs which they can control.
- (3) (d) Relevant costs are those costs that would be changed by a decision. Costs that are relevant in one set of circumstances are not necessarily applicable in a different set of circumstances. Future costs are often relevant and variable costs tend to be relevant.

100

**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### FINANCIAL CONTROLLERSHIP 316 EXAMINATION December, 1984

Marks Time: 3 Hours

**NOTE:** Show all calculations neatly. For essay-type questions, carefully outline your answer before starting to write. Marks are allocated on the basis of the quality of the answer, not the amount written.

- 14 0.1
  - (9) (a) Identify *three* factors which are reflected in the objective of stock price maximization but are not reflected in the objective of profit maximization.
  - (5) (b) Explain *one* of the main advantages of the holding company arrangement (do not include tax or legal advantages in your answer).
- Q.2 The Vone Company has asked you to evaluate a draft of a financial lease agreement recently proposed by the Kat Company. Kat proposes to lease a parcel of land to Vone. The land can be currently bought for \$100,000. Kat proposes a 15 year lease, with a \$25,000 annual lease payment to be made at the beginning of each year. Vone's marginal tax rate is 40%; it can borrow long-term at 15%; and it has a cost of capital of 20%.
  - (8) (a) Calculate the cost of leasing the land.
  - (6) (b) Calculate the cost of leasing the land if the lease payments were made at the end of each year instead of at the beginning of each year.
- Q.3 A co-worker has memoed you regarding an "unfortunate computer error" which he claims exists in a program recently purchased for the purpose of evaluating capital budgeting proposals in your firm. Attached to his memorandum is a computer printout which contains the following information:

Project: TDL Life: 10 years Investment: \$150,000

#### Table of NPV and IRR

Cost of Capital	NPV	IRR
8%	1,642	21.8%
10%	1,484	21.8%
12%	1,210	21.8%
14%	1,013	21.8%
16%	816	21.8%
18%	609	21.8%

The key paragraph of your co-worker's memorandum reads:

"It should be apparent to you that the IRR calculations are in error: the computer keeps printing 21.8% in the IRR column for all the different cost of capital values. I request that this program be taken off the computer and replaced by one which does properly what it is advertised to do."

#### REQUIRED:

Prepare a short memorandum of reply.

Q.4 Assume a client of yours is now (t=0) forty-five and plans to retire 10 years (t=10) from now at age fifty-five. He plans to save \$10,000 a year for the next three years (t=1,2 and 3) and \$18,000 a year for the following seven years (t=4,5....10). Moreover, your client owns a piece of land currently valued at \$150,000 which is expected to appreciate in value 10% per year.

#### REQUIRED:

- (7) (a) Disregarding taxes and assuming savings will appreciate at 12% compounded annually, calculate the total wealth of your client upon retirement (from savings and real estate).
- (5) (b) Assume all the wealth calculated in part (a) is invested at t = 10 in an account that pays 7% per year. Moreover, assume your client wishes to withdraw \$60,912 at the end of each year during his retirement years. Calculate the number of years which will elapse after his retirement before he ends up with a zero balance. Do not interpolate; show the approximate number of years.
- 12 Q.5
  - (6) (a) Discuss two key factors considered when investors evaluate a share exchange type of acquisition.
  - (6) (b) Explain "phantasmic growth".
- Q.6 You are asked to evaluate two mutually exclusive proposals for which the expected values of after-tax cash flows are:

Year	Proposal A	Proposal B
0	- 42,000	- 50,000
1	25,000	_
2	25,000	_
3	25,000	80,000

Risk analysis of each cash flow distribution has provided the following certainty equivalent coefficients.

Year	Proposal A	Proposal II
0	1.0	1.0
1	.9	_
2	.7	_
3	.4	.75

- (6) (a) Assuming a risk-free rate of 8%, calculate the NPV for both proposals using the certainty equivalent method.
- (8) (b) If the firm were to use the risk adjusted discount rate method instead of the certainty equivalent method, calculate the discount rates which would yield the same NPV's obtained in part (a). Do not interpolate; show approximate rates.

- 10 Q.7
  - (3) (a) Define financial leverage.
  - (4) (b) Identify the *two* approaches available to measure financial leverage and provide one example of each.
  - (3) (c) Briefly explain the importance of financial leverage.
- 12 Q.8 Troy has decided to sell \$3 million of 10 year debentures-with-warrants at their \$1,000 face value. The debentures carry a coupon of 12%. Each debenture will have attached 10 warrants, each exercisable into two shares of common stock at an exercise price of \$35. Each warrant is expected to trade at a market value of \$5.

Currently Troy has only one outstanding issue of straight debentures which trade to yield 14%. These debentures will mature in 10 years and have a \$1,000 face value.

The debentures-with-warrants issue has been priced in such a way that the initial market value of 1 debenture-with-warrants will equal the market value of 1 straight debenture plus the expected market value of the 10 attached warrants.

#### REQUIRED:

Calculate the interest payment on a straight debenture which is already outstanding.

100

END OF EXAMINATION

Table A.1 Present Value of

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	9901	9804	9709	9615	9524	9434	9346	9259	9174	.9091	8929	8772	8696	.8621	8475	.8333	8065	7813	7576	7353
2	9803	9612	9426	9246	9070	8900	8734	8573	8417	8264	7972	7695	7561	7432	7182	6944	6504	.6104	5739	.5407
3	9706	9423	9151	8890	8638	8396	8163	7938	.7722	.7513	7118	6750	6575	6407	6086	5787	5245	4768	4348	3975
4	9610	9238	8885	8548	8227	7921	7629	7350	7084	.6830	6355	5921	.5718	5523	.5158	4823	4230	.3725	3294	2923
5	.9515	9057	8626	8219	7835	7473	7130	6806	6499	6209	5674	5194	4972	4761	4371	4019	3411	.2910	.2495	.2149
6	9420	8880	8375	7903	7462	7050	6663	6302	5963	5645	5066	4556	4323	4104	.3704	3349	2751	2274	1890	1580
7	9327	8706	8131	7599	7107	6651	6227	5835	5470	5132	4523	3996	3759	3538	3139	.2791	2218	1776	1432	1162
8	9235	8535	7894	7307	6768	6274	5820	5403	.5019	4665	4039	3506	3269	3050	.2660	2326	1789	1388	1085	.0854
9	9143	8368	7664	7026	6446	5919	5439	5002	4604	4241	3606	3075	2843	2630	2255	1938	.1443	1084	0822	0628
10	9053	8203	7441	6756	6139	5584	5083	4632	4224	3855	3220	.2697	.2472	2267	1911	1615	1164	0847	0623	0462
11	8963	8043	7224	6496	5847	5268	4751	4289	3875	3505	2875	2366	2149	1954	1619	1346	0938	0662	0472	0340
12	8874	7885	7014	6246	5568	4970	4440	3971	3555	3186	2567	2076	1869	1685	1372	1122	0757	0517	0357	0250
13	8787	7730	6810	6006	5303	4688	4150	3677	3262	2897	2292	1821	1625	1452	1163	0935	0610	0404	0271	.0184
14	8700	7579	6611	5775	5051	4423	3878	3405	2992	2633	2046	1597	1413	1252	0985	0779	0492	0316	0205	0135
15	8613	7430	6419	5553	4810	4173	3624	3152	2745	2394	1827	1401	1229	1079	0835	0649	0397	0247	0155	0099
16	8528	7284	6232	5339	4581	3936	3387	2919	2519	2176	1631	1229	1069	0930	0708	0541	0320	0193	0118	0073
17	8444	7142	6050	5134	4363	3714	3166	2703	2311	1978	1456	1078	0929	0802	0600	0451	0258	0150	0089	.0054
18	8360	7002	5874	4936	4155	3503	2959	2502	2120	1799	1300	0946	0808	0691	0508	0376	0208	0118	0068	0039
19	8277	6864	5703	4746	3957	3305	2765	2317	1945	1635	1161	0829	.0703	0596	0431	0313	0168	0092	0051	0029
20	8195	6730	5537	4564	3769	3118	2584	2145	1784	1486	1037	0728	0611	0514	0365	0261	0135	0072	0039	0021
25	7798	6095	4776	3751	2953	2330	1842	1460	1160	0923	0588	0378	0304	0245	.0160	0105	0046	0021	0010	0005
30	7419	5521	4120	3083	2314	1741	1314	0994	0754	0573	0334	0196	0151	0116	0070	0042	0016	0006	0002	0001
40	6717	4529	3066	2083	1420	0972	0668	0460	0318	0221	0107	0053	0037	0026	0013	0007	0002	0001	•	•
50	6080	3715	2281	1407	0872	0543	0339	0213	0134	0085	0035	0014	0009	0006	0003	0001	•	•		•
60	5504	3048	1697	0951	0535	0303	0173	0099	0057	0033	0011	0004	0002	0001		•		•	•	

Table A.2 Present Value of an Annuity of \$1 Per Period for n Periods

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0 9709	0 9615	0 9524	0 9434	0.9346	0 9259	0.9174	6 9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1 9704	1 9416	1 9135	1 8861	1 8594	1 8334	1 8080	1 7833	1 7591	1 7355	1 6901	1 6467	1 6257	1 6052	1 5656	1 5278	1 4568	1 3916	1 3315
3	2 9410	2 8839	2 8286	2 7751	2 7232	2 6730	2 6243	2 5771	2 5313	2 4869	2 4018	2 3216	2 2832	2 2459	2 1743	2 1065	1 9813	1 8684	1 7663
4	3 9020	3 8077	3 7171	3 6299	3 5460	3 4651	3 3872	3 3121	3 2397	3 1699	3 0373	2 9137	2 8550	2 7982	2 6901	2 5887	2 4043	2 2410	2 0957
5	4 8534	4 7135	4 5797	4 4518	4 3295	4 2124	4 1002	3 9927	3 8897	3 7908	3 6048	3 4331	3 3522	3 2743	3 1272	2 9906	2 7454	2 5320	2 3452
6	5 7955	5 6014	5 4 1 7 2	5 2421	5 0757	4 9173	4 7665	4 6229	4 4859	4 3553	4 1114	3 8887	3 7845	3 6847	3 4976	3 3255	3 0205	2 7594	2 5342
7	6 7282	6 4720	6 2303	6 0021	5 7864	5 5824	5 3893	5 2064	5 0330	4 8684	4 5638	4 2883	4 1604	4 0386	3 8115	3 6046	3 2423	2 9370	2 6775
8	7 6517	7 3255	7 0197	6.7327	6 4632	6 2098	5 9713	5 7466	5 5348	5 3349	4 9676	4 6389	4 4873	4 3436	4 0776	3 8372	3 4212		2 7860
9	8 5660	1622	7 7861	7 4353	7 1078	6 8017	6 5152	6 2469	5 9952	5 7590	5 3282	4 9464	4 7716	4 6065	4 3030	4 0310	3 5655		2 8681
10	9 4713	8 9826	■ 5302	8 1109	7 7217	7 3601	7 0236	6 7101	6 4177	6 1446	5 6502	5 2 1 6 1	5 0188	4 8332	4 4941	4 1925	3 6819	3 7689	2 9304
11	10 3676	■ 7868	9 2526	8 7605	8 3064	7 8869	7 4987	7 1390	6 8052	6 4951	5 9377	5 4527	5 2337	5 0286	4 6560	4 3271	3 7757	3 3351	2 9776
12	11 2551	10 5753	9 9540	9 3851	■ 8633	8 3838	7 9427	7 5361	7 1607	6 8137	6 1944	5 6603	5 4206	5 1971	4 7932	4 4392	3 8514	3 3868	3 0133
13	12 1337	11 3484	10 6350	9 9856	9 3936	8 8527	8 3577	7 9038	7 4869	7 1034	6 4235	5 8424	5 5831	5 3423	4 9095	4 5327	3 9124	3 4272	3 0404
14	13 0037	12 1062	11 2961	10 5631	9 8986	9 2950	8 7455	B 2442	7 7862	7 3667	6 6282	6 0021	5 7245	5 4675	5 0081	4 6 1 0 6	3 9616	3 4587	3 0609
15	13 8651	12 8493	11 9379	11 1184	10 3797	9 7122	9 1079	8 5595	8 0607	7 606 !	6 8109	6 1422	5 8474	5 5755	5 0916	4 6755	4 0013	3 4834	3 0764
16	14 7179	13 5777	12 5611	11 6523	10 8378	10 1059	9 4466	8 8514	8 3126	7 8237	6 9740	6 2651	5 9542	5 6685	5 1624	4 7296	4 0333	3 5026	3 0882
17	15 5623	14 2919	13 1661	12 1657	11 2741	10 4773	9 7632	9 1216	8 5436	8 0216	7 1196	6 3729	6 0472	5 7487	5 2223	4 7746	4 0591	3 5 1 7 7	3 0971
18	16 3983	14 9920	13 7535	12 6593	11 6896	10 8276	10 0591	9 3719	8 7556	8 2014	7 2497	6 4674	6 1280	5 8178	5 2732	48122	4 0799	3 5294	3 1039
19	17 2260	15 6785	14 3238	13 1339	12 0853	11 1581	10 3356	9 6036	8 9501	8 3649	7 3658	6 5504	6 1982	5 8775	5 3162	4 8435	4 0967		3 1090
20	18 0456	16 35 14	14 8775	13 5903	12 4622	11 4699	10 5940	98181	9 1285	8 5 1 3 6	7 4694	6 6231	6 2593	5 9288	5 3527	4 8696	4 1103	3 5458	3 1129
25	22 0232	19 5235	17 4131	15 6221	14 0939	12 7834	11 6536	10 6748	■ 8226	9 0770	7 8431	6 8729	6 464 1	6 0971	5 4669	4 9476	4 1474		3 1220
30	25 8077	22 3965	19 6004	17 2920	15 3725	13 7648	12 4090	11 2578	10 2737	9 4 2 6 9	8 0552	7 0027	6 5660	6 1772	5 5 1 6 8	4 9789	4 1601	3 5693	3 1242
40	32 8347	27 3555	23 1148	19 7928	17 1591	15 0463	13 3317	11 9246	10 7574	9 7791	8 2438	7 1050	6 6418	6 2335	5 5482	4 9966	4 1659		3 1250
50	39 1961	31 4236	25 7298	21 4822	18 2559	15 7619	13 8007	12 2335	10 9617	9 9148	8 3045	7 1327	6 6605	6 2463	5 5541	4 9995	4 1666		3 1250
60	44 9550	34 7609	27 6756	22 6235	18 9293	16 1614	14 0392	12 3766	11 0480	9 9672	8 3240	7 1401	6 6651	6 2492	5 5553	4 9999	4 1667	3 5714	3 1250

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Table A.3 Future Value of \$1 at the End of n Periods

					5 %	6%	7%	8 %	9 %	10 %	12 %	14 %	15 %	16%	18 %	20 %	24 %	28 %	32 %	36 %
1 1.01	0100	1 0200	1 0300	1 0400	1 0500	1 0600	1 0700	1 0800	1 0000	1 1000	1 1200	1 1400	1 1500	1 1600	1 1800	1 2000	1 2400	1 2800	1 3200	1 3600
2 1 02	0201	1 0404	1 0609	1 0816	1 1025	1 1236	1 1449	1 1664	1 1881	1 2100	1 2544	1 2996	1 3225	1 3456	1 3924	1 4400	1 5375	1 6384	1 7424	1 8496
3 1 03	3303	1 0612	1 0927	1 1249	1 1576	1 1910	1 2250	1 2597	1 2950		1 4049	1 4815	1 5209	1 5609	1 6430	1 7280	1 9066	2 0972	2 3000	2 5155
	0406	1 0824	1 1255	1 1699	1 2155	1 2625	1 3108	1 3605	1 4116	1 4641	1 5735	1 6890	1 7490	18106	1 9388	2 0736	2 3642	2 6844	3 0360	3 4210
5 1 05	0510	1 1041	1 1593	1 2167	1 2763	1 3382	1 4026	1 4693	1 5386	1 6105	1 7623	1 9254	2 0114	2 1003	2 2878	2 4883	2 9316	3 4360	4 0075	4 6526
		1 1262	1 1941	1 2653	1 3401	1 4185	1 5007							2 4364		2 9860		4 3980	5 2899	6 3275
, , , ,		1 1487	1 2299	1 3159	1 4071	1 5036	1 6058	1 7138	1 8280						3 1855	3 5832	4 5077	5 6295	6 9826	8 6054
		1 1717	1 2668	1 3686	1 4775	1 5938	1 7182	1 8509	1 9926		2 4760	2 8526	3 0590		1 7589	4 2998	5 5895	7 2058	9 2 1 7 0	11 703
5 .00		1 1951	1 3048	1 4233	1 5513	1 6895	1 8385		2 1719	2 3579		3 2519	3 5 1 7 9	3 8030		5 1598	6 9310	9 2234	12 166	15 916
10 1 10	1046	1 2190	1 3439	1 4802	1 6289	1 7908	1 9672	2 1589	2 3674	2 5937	3 1058	3 7072	4 0456	44114	5 2338	6 1917	B 5944	11 805	16 059	21 646
31 111	1157	1 2434	1 3842	1 5395	1.7103	1 8983	2 1049	2 3316	2 5804	2.8531	3 4785	4 2262	4 6524	5 1173	6 1759	7 4301	10 657	15 111	21 198	29 439
	1268	1 2682	1 4258	1 6010		2 0122									7 2876	8 9161	13 214	19 342	27 982	40 037
13 1 13	381	1 2936	1 4685	1 6651	1 8856	2 1329	2 4098	2 7196	3 0658	3 4523	4 3635	5 4924	6 1528	6 8858	8 5994	10 699	16 386	24 758	36 937	54 451
14 1 14	1495	1 3195	1 5126	1 7317	1 9799	2 2609	2 5785	2 9372	3 3417	3 7975	4 8871	6 2613	7 0757	7 9875	10 147	12 839		31 691	48 756	74 053
15 1 16	1610	1 3459	1 5580	1 8009	2 0789	2 3966	2 7590	3 1722	3 6425	4 1772	5 4736	7 1379	8 1371		11 973	15 407			64 358	100 71
16 1 17	726	1 3728	1 6047	1 8730	2 1829	2 5404	2 9522	3 4259	3 9703	4 5950	6 1304	8 1372	9 3576	10 748	14 129	18 488	31 242	51 923	84 953	136 96
17 1 18	1843	1 4002	1 6528	1 9479	2 2920	2 6928	3 1588			5 0545		9 2765	10 761		16 672	22 185		66 461	112 13	186 27
18 1 19	1961	1 4282	1 7024	2 0258	2 4066	2 8543	3.3799		4 7171			10 575	12 375	14 462	19 673	26 623	48 038	85 070	148 02	253 33
19 1 20	2081	1 4568	1 7535	2 1068	2 5270		3 6165					12 055	14 231	16 776		31 948	59 567	108 89	195 39	344 53
20 1 22	202	1 4859	1 8061	2 1911	2 6533	3 2071						13 743		19 460		38 337	73 864	139 37	257 91	468 57
21 1 23:	324	1 5157	1 8603	2 2788	2 7860	3 3996	4 1406	5 0338	6 1088	7 4002	10 803	15 667	18 821	22 574	32 323	46 005	91 591	178 40	340 44	637 26
22 1 24	447	1 5460	1 9161	2 3699	2 9253	3 6035	4 4304	5 4365	6 6586	8 1403	12 100	17 861	21 644		38 142	55 206			449 39	866 67
23 1 25	2572	1 5769	1 9736	2 4647	3 0715	3 8197	4 7405	5 8715	7 2579	8 9543	13 552	20 361	24 891	30 376	45 007	66 247		292 30	593 19	1178.6
24 1 269	697	1 6084	2 0328	2 5633	3 2251	4 0489	5 0724	6 3412	7 9111	9 8497	15 178	23 212	28 625	35 236				374 14	783 02	1602 9
25 1 28:	824	1 6406	2 0938	2 6658	3 3864	4 2919	5 4274	6 8485	8 6231	10 834	17 000	26 461		40 874				478 90	1033 5	2180 0
26 1 295	953	1 6734	2 1566	2 7725	3 5557	4 5494	5 8074	7 3964	9 3992	11 918	19 040	30 166	37.856	47 414	72 040	114 47	288 51	612 99	17012	
27 1 308	1082	1 7069	2 2213	2 8834	3 7335	4 8223	6 2139	7 9881		13 110		34 389		55 000		137 37			1364 3	2964 9
28 1 32	213	1 7410	2 2879	2 9987	3 9201	5 1117	6 6488	8 6271		14 421					102 96			784 63		4032 2
29 1 334	345	1 7758	2 3566	3 1187	4 1161	5 4 1 8 4	7 1143	9 3173	12 172	15 863				74 008	121 50	197.81	511.95	1004 3	2377 2	5483 8
30 1 34	478	1 8114	2 4273	3 2434	4 3219	5 7435	7 6123	10 062	13 267				66 211		143 37	237 37		1285 S 1645 S	3137 9 4142 0	7458 0 10143
40 1 488				4 8010	7 0400	10 285	14 974	21 724	31 409	45 259	93 050	188 88	267 86	378 72	750 37	1469 7	5455.9	19426	66520	
50 1 644				7 1067	11 467	18 420				117 39		700 23	1083 6	1670 7	3927.3	9100 4	46890	13420	•	
60 1816	167	3 2810	5 8916	10 5 19	18 679	32 987	57 946	101 25	176 03	304 48	897 59	2595 9			20555	56347	,			

Table A.4 Sum of an Annuity of \$1 Per Period for n Periods

Number of Periods	1%	2%	3 %	4%	5%	6%	7%	8%	9%	10 %	12 %	14%	15 %	16%	18%	20%	24%	28 %	32 %	36%
1	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	0000 1	1.0000	1.0000	1 0000	1 0000	₹ 00000	1 0000	1 0000	1 0000					
2	2 0100	2 0200	2 0300	2 0400	2 0500	2 0600	2 0700	2 0800	2 0900	2 1000	2 1200	2 1400	2 1500	2 1600	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000
3	3 0301	3 0604	3 0909	3 1216	3 1525	3 1836	3 2149	3 2464	3 2781	3 3100	3 3744	3 4396	3 4725		2 1800	2 2000	2 2400	2 2800	2 3200	2 3600
4	4 0604	4 1216	4 1836	4 2465	4 3101	4 3746	4 4399		4 5731	4 6410		4 9211	4 9934	3 5056	3 5724	3 6400	3 7776	3 9184	4 0624	4 2096
5	5 1010	5 2040	5 3091	5 4 1 5 3	5 5256			5 8666	5 9847	6 1051		66101		5 0665	5 2154	5 3680	5 6842	6 0 1 5 6	6 3624	6 7251
								, 0000	1 3047	0 1031	0 3320	0 0 10 1	6 7424	6 8 7 7 1	7 1542	7 4416	8 0484	8 6999	9 3983	10 146
- 6		6 308)	6 4684	6 6330	5 8019	6 9753	7 1533	7 3359	7 5233	7 7156	8 1152	8 5355	8 7537	8 9775	9 4420	9 9299	10 980	12 135	12.400	
7	7 2135	7 4343	7 6625	7 8983	8 1420	8 3938	8 6540	8 9228	9 2004	9 4872	10 089	10 730	11 066	11 413	12 141	12 915	14 615		13 405	14 798
8	8 2857	8 5830	8 8923	9 2 1 4 2	9 5491	9 8975	10 259	10 636	11 028	11 435	12 299	13 232	13 726	14 240	15.327	16 499		16 533	18 695	21 126
9	9 3685	9 7546	10 159	10 582	11 026	11 491	11 978	12 487	13 021	13 579	14 775	16 085	16 785	17518	19 085	20 798	19 122	22 163	25 678	29 731
10	10 462	10 949	11 463	12 006	12 577	13 180	13.816	14 486	15 192	15 937	17 548	19 337	20 303	21 321	23 521	25 958	31 643	29 369	34 895	41 435
11													10 303	21,021	23 321	20 000	31 043	38 592,	47 061	57 351
	11 566	12 168		. 13 486	14 206	14 971	15 783	16 645	17 560	18 531	20 654	23.044	24 349	25 732	28 755	32 150	40 237	50 398	63 121	70.000
12 13	12 682	13 412	14 192	15 025	15 917	16 869	17 888	18 977	20 140	21 384	24 133	27 270	29 001	30 850	34 931	39 580	50 894	65 510		78 998
14	13 809	14 680	15 617	16 626	17 713	18 882	20 140	21 495	22 953	24 522	28 029	32 088	34 351	36 786	42 218	48 496	64 109	84 852	84 320	108 43
15	14 947	15 973	17 086	18 291	19 598	21 015	22 550	24 214	26 019	27 975	32 392	37 581	40 504	43 672	50 818	59 195	80 496	109.61	112 30	148 47
15	16 096	17 293	18 598	20 023	21 578	23 276	25 129	27 152	29 360	31 772		43 842	47 580	51 659	60 965	72 035	100 81	141 30	149 23	202 92 276 97
16	17 257	18 639	20 156	21 824	23 657	25 672	27.000	20											131 33	21031
17	18 430	20 012	21 761		25 840	28 212	27 888	30 324	33 003	35 949	42 753	50 980	55 717	60 925	72 939	87 442	126 01	181 86	262 35	377 69
18	19 614	21 412	23 414	25.645	28 132	30 905	30 840 33 999	33 750	36 973	40 544	48 883	59 117	65 075	71 673	87 068	105 93	157 25	233 79	347.30	514 66
19	20 810	22 840		27,671	30 539	33 760		37 450	41 301	45 599	55 749	68 394	75 836	84 140	103 74	128 11	195 99	300.25	459 44	700 93
20	22 019	24 297	26 870	29 778	33 066					51 159	63 439	78 969	88 211	98 603	123 41	154 74	244 03	385 32	607 47	954 27
			10010	23 / / 0	33 000	30 / 63	40 995	45 762	51 160	57 275	72 052	91 024	102 44	115.37	146 62	186 68	303 60	494 21	802 86	1298.8
21	23 239	25 783	28 676	31 969	35 719	39 992	44 865	50 422	56 764	64 002	01 600	101.70								
22	24 471	27 299	30 536	34 248	38 505	43 392	49 005	55 456	62 873	71 402	81 698 92 502	104 76	118.81	134 84	174 02	225 02	377 46	633 59	1060 7	1767 3
23	25 716	28 845	32 452	36 617	41 430	46 995	53 436	60 893	69 531	79 543	104 60	120 43	137 63	157.41	206 34	271 03	469 05	811 99	14012	2404 6
24	26 973	30 421	34 426	39 082	44 502	50 815	58 176	66 764	76 789	88 497	118 15	138 29	159 27	183 60	244 48	326 23	582 62	1040 3	1850 6	32713
25	28 243	32 030	36 459	41 645	47 727	54 864	63 249	73 105	84 700	98 347		158 65	184 16	213 97	289 49	392 48	723 46	1332 6	2443 8	4449 9
									04 700	20 347	133 33	181 87	212 79	249 21	342 60	471 98	898 09	1706.8	32268	6052 9
26	29 525	33 670	38 553	44 311	51 113	59 156	68 676	79 954	93 323	109 18	+50.72	200 22	0.45 74							
27	30 820	35 344	40 709	47 084	54 669	63 705	74 483	87 350	102 72	121 09	150 33	208 33	245 71	290 08	405 27	567 37	11146	2185 7	4260 4	8233 0
28	32 129	37 051	42 930	49 967	58 402	68 528	80 697	95 338	112 96	134 20		238 49	283 56	337 50	479 22	681 85	1383 1	2798 7	5624 7	111979
29	33 450	38 792	45 218	52 966	62 322	73 639	87 346	103 96	124 13	148 63		272 88	327 10	392 50	566 48	819 22	17160	3583 3	7425 6	15230 2
30	34 784	40 568	47 575	56 084	66 438	79 058	94 460	113 28	136 30	164 49	241 33	312 09	377 16	456 30	669 44	984 06	2128 9	4587.6	9802 9	207141
40	40.000	00.400								.02 43	24: 33	356 78	434 74	530 31	790 94	11818	2640 9	5873 2	12940	28172 2
40 50	48 886	60 402	75 401	95 025	120 79	154 76	199 63	259 05	337 88	442 59	767 09	1342 0	1779 0	2360 7	4162.2	2242.0	20200			
	64 463	84 579	112 79	152 66	209 34	290 33	406 52	573 76	815 08	1163 9	2400.0	4994 5	7217 7	10435	4163 2	7343 8	22728	69377	•	•
60	81 669	114 05	163 05	237 99	353 58	533 12	813 52	1253 2	1944 7	3034 8	74716	18535	29219	46057	21813	45497	Ĭ	·	•	•
												.0333	23213	40007						

#### CERTIFIED COUNTANTS' ASSOCIATION OF CAMADA

# FINANCIAL CONTROLLERSHIP 316 LIANUMILUM December, 1984 EXAMINER'S CONTROLLERSHIP 316 LIANUMILUM

### General

Questions 7 and 8 (together worth 22 marks) were poorly handled by a significant number of students.

### Specific

- Q.1 (a) Many answers repeated the same point over and over again.

  Many neglected to mention that the riskiness of cash flows reflected in stock price maximization and not in profit maximization.
  - (b) Generally well answered.
- Q.2 (a) Many students did not recognize that 9% is the appropriate discount rate to use when calculating COL. Some omitted the (1-T) tax adjustment.
  - (b) The majority of students who answered Q.2(a) correctly also answered Q.2(b) correctly.
- Q.3 Marks were lost for stating that the NPV and IRR provide conflicting results because they assume different discount rates. This is not the answer to the question. It was necessary to state clearly that IRR calculations are independent of NPV calculations.
- Q.4 (a) There was frequently difficulty in calculating the future value of the \$10,000 annuity.
  - (b) Students made mistakes by incorrectly referring to the "PV of \$1" table instead of the "PV of an annuity of \$1" table.
- Q.5 (a) Students seemed to either know the answer completely or not at all. Some incorrectly discussed reasons for mergers instead of answering the question.
  - (b) Answered well by most students.
- Q.6 (a) Students did well with the conceptual side of this question; a few made calculation errors.
  - (b) Many students made calculation errors when computing the discount rates which would yield the NPVs obtained in Q.6(a).
- Q.7 The concept of financial leverage or its importance does not seem to be well understood. It should be.
- Q.8 There was frequently difficulty in setting up the equation necessary to solve the problem. Many used incorrect discount rates.

# FINANCIAL CONTROLLERSHIP 316 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 14 Q.1
  - (9) (a) These three factors are: timing of cash flows, riskiness or uncertainty of cash flows and the firm's dividend policy.

MARKS: (3) for each factor correctly identified to a maximum of 9 marks

(5) (b) One of the main advantages is the control over other corporations with only minimal commitment of funds.

Other answers may include:

Protection resulting from risk diversification.

The lack of negotiation required to gain control of a corporation.

- 14 0.2
  - (8) (a) Vone's after-tax cost of debt is 9% [.15 × (1 .4)]. This is the appropriate rate to use when calculating the cost of leasing (COL).

COL = PV of Lease Payments 
$$\times$$
 (1 - .4)  
= 25,000  $\times$  .6 + 25,000  $\times$  .6  $\times$  7.786  
COL = \$131,790

- MARKS: (3) for correctly determining the after-tax cost of debt
  - (3) for correctly setting up the equation for COL
  - (2) for correctly calculating COL
- (6) (b) The cost of leasing is calculated as follows:

$$COL = $25,000 \times .6 \times 8,060$$
  
 $COL = $120,900$ 

MARKS: (4) for correct interest factor

- (2) for correctly calculating the COL equation
- Q.3 The memorandum of reply should focus on the fact that the IRR calculation is independent from the different values for the cost of capital. NPV values and not IRR values, are a function of the cost of capital.

12 Q.4

(7) (a) Total Wealth = FV of Savings + FV of Land

FV of Savings =  $(10,000 \times 3.374 \times 2.211) + (18,000 \times 10.089)$ 

= 74,599 + 181,602

= \$256,201

FV of Land =  $$150,000 \times 2,594$ 

= \$389,100

Total Wealth = \$256,201 + 389,100

= \$645.301

MARKS: (2) for first term in FV of savings equation

- (2) for second term in FV of savings equation
- (2) for FV of land
- (1) for total wealth
- (5) (b) The PV of \$60,912 per year must equal \$645,301.

\$645,301 = PV of \$60,912 annuity

\$645,301 = \$60,912 (x)

X = 10.594

From the table entitled Present Worth of an Annuity of \$1, at 7% the interest factor is 10.594 when n=20 years.

MARKS: (2) for correctly setting up the equation

- (1) for correctly calculating the IF
- (2) for correctly calculating the number of years

12 Q.5

- (6) (a) When investors evaluate a share exchange type of acquisition they usually focus on the market prices and earnings per share of the firms involved and on the premium offered to the owners of the firm being acquired.
  - MARKS: (3) for each key factor recognized to a maximum of 6 marks
- (6) (b) Phantasmic growth refers to the growth in earnings per share achieved by a firm through merger with another firm with a lower P/E ratio and a higher earnings per share.
  - MARKS: (2) for recognizing that phantasmic growth refers to the growth in EPS of a firm
    - (2) for recognizing the need to acquire a firm with a lower P/E ratio
    - (2) for recognizing the need to acquire a firm with a higher EPS ratio

14 Q.6

(6) (a) NPV<sub>A</sub> = 
$$-42,000 + .9 \times 25,000 \times .926 + .7 \times 25,000 \times .857 + .4 \times 25,000 \times .794$$
  
=  $-42,000 + 20,835 + 14,997 + 7,940$   
=  $1,772$   
NPV<sub>B</sub> =  $-50,000 + .75 \times 80,000 \times .794$   
=  $-50,000 + 47,640$   
=  $-2.360$ 

MARKS: (3) for correct interest factors used in calculating NPVA

- (1) for correctly calculating NPVA
- (1) for correct interest factor used in calculating NPVB
- (1) for correctly calculating NPVB

(8) (b) NPV<sub>A</sub> = 1,772  
Thus,  
$$1,772 = -42,000 + 25,000 \times X$$
  
 $X = 1.75$ 

Examining the table entitled Present Worth of an Annuity of \$1, when n = 3, an interest factor of 1.75 corresponds to a k close to 32%.

Similarly, the NPV<sub>B</sub> = 
$$-2,360$$
. Thus,  
 $-2,360 = -50,000 + 80,000 \times X$   
 $X = .5955$ 

Examining the table entitled Present Value of \$1, where n=3, an interest factor of .5955 corresponds to a k close to 18%.

- MARKS: (1) for correctly setting up the equation for NPV A
  - (1) for correctly calculating the interest factor in the equation for NPV A
  - (2) for correctly calculating k for Project A
  - (1) for correctly setting up the equation for NPVB
  - (1) for correctly calculating the interest factor in the equation for NPVB
  - (2) for correctly calculating k for Project B

10 O.7

- (3) (a) Financial leverage refers to the use of funds which entail a fixed cost and are used to generate uncertain returns.
- (2) (b) The first approach focuses on the data provided in a firm's balance sheet (for example the debt to equity ratio).
- The second approach focuses on the data provided in a firm's income statement (for example the interest coverage ratio).
- (3) (c) Financial leverage is important because it is a proxy for financial risk which refers to the additional variability of the expected earnings available to common shareholders introduced through the use of fixed cost securities.

12 Q.8 Let X be the dollar interest on the straight debentures. Then.

> Value of 1 Debenture-with-Warrants = Value of 1 Straight Debenture + Value of 50 Warrants

 $$1,000 = \text{Value of 1 Straight Debenture} + 10 \times 5$ 

Value of 1 Straight Debenture = \$950

However, the value of 1 straight debenture is given by

Value of 1 = PV of a 10 year annuity + PV of \$1,000 of X dollars discounted discounted at Straight Debenture at 14% 14%

Thus,  $$950 = X \times 5.216 + 1,000 \times .270$ = 680 5.216 = \$130.37

MARKS: (4) for correctly setting up the problem (4) for correctly formulating the value of 1 straight debenture

(4) for correctly calculating X

100

END OF SOLUTIONS

### CERTIFIED GRIDENAL ACCOUNTANTS' ASSOCIATION OF CANADA

## FINANCIAL MARKETHERT 316 EXAMINATION June, 1985

Marks Time: 3 Hours

NOTE: Show all calculations neatly. For essay-type questions, carefully outline your answer before starting to write. Marks are allocated on the basis of the quality of the answer, not the amount written. Tables are attached.

- 12 0.1
  - (4) (a) Explain why stock purchase warrants sell for more than their formula value.
  - (8) (b) Explain and illustrate, with an example, the reason why the premium on a stock purchase warrant declines as the price of the stock rises.
- 12 Q.2 The management of the Musson Fund has made the following investments:

Stock	Dollars Invested	Stock's Beta	Stock's Expected Rate of Return
AA	\$100,000	1.2	15.6%
BB	200,000	2.0	22.0
CC	500,000	0.9	13.2

- (3) (a) Calculate the beta of the total fund.
- (3) (b) Calculate the expected rate of return of the total fund.
- (6) (c) Assume a risk-free rate of 6% and the expected market return  $k_{\rm m}$  of 14%. The management of the Musson Fund has received a proposal to purchase \$300,000 of stock DD which offers an expected rate of return of 20% and its estimated beta coefficient is 1.5. Should the new stock be purchased?
- 10 Q.3 Explain why the opportunity cost associated with depreciation is not included in the calculations of the cost of capital. Illustrate your answer with an example.

- 15 Q.4 The Penton Company must make a payment of 400,000 American dollars a year from now. The company is faced with the following three alternatives:
  - i) Purchase the 400,000 American dollars needed at the current 12 months forward rate of 1.3550 Canadian dollars per one American dollar.
  - ii) Negotiate a 12 month loan from a Canadian chartered bank at a rate of 13.5% and invest the proceeds in the United States at a rate of 12.5%. The current spot rate is 1.3460 Canadian dollars per one American dollar.
  - iii) Convert Canadian dollars into the 400,000 American dollars
    12 months from now. Company officials expect the spot rate
    12 months from now to be 1.3500 Canadian dollars per one
    American dollar.

## REQUIRED:

- (10) (a) Calculate the cost in Canadian dollars of each of the three alternatives listed above.
- (5) (b) Is there any disadvantage in selecting the alternative with the lowest cost?
- 12 Q.5 Discuss the arguments set forth by the proponents of Signaling Theory and Agency Theory to support the view that wealth maximizing firms will adopt optimal dividend decisions. (Note: assume publicly held shares.)
- 15 Q.6 The Sean Company can purchase an asset for \$200,000. The asset has an estimated life of 10 years and an estimated residual value equal to 15% of the original cost. Capital cost allowances can be taken at a rate of 20% on a declining balance basis. The asset can be leased by making annual lease payments at the beginning of each year. Alternatively, a loan of \$200,000 can be obtained from the bank at 16% with the asset pledged as a collateral. The loan is to be repaid in equal annual instalments over 10 years. The corporate tax rate is 50% and the firm's after-tax cost of capital is 14%.

#### REQUIRED:

Calculate the annual lease payment which would make the Sean Company indifferent between leasing and borrowing to purchase the asset. Assume the tax shelter due to lease payments is available at the beginning of the period.

14 Q.7 List the three functions performed by a factoring company and explain the procedures followed when performing these functions.

10 Q.8 You have been asked to evaluate the following mutually exclusive proposals:

	Proposal 1	Proposal 2
Investment Cash Flows	\$ 200,000	\$1,000,000
Time 1 Time 2 Time 3	113,231 113,231 113,231	459,918 459,918 459,918

The firm's after-tax cost of capital is 10%.

## REQUIRED:

Rank both proposals in terms of the NPV and incremental IRR criteria and select the proposal you would recommend for investment.

100

END OF EXAMINATION

Table A.1 Present Value of \$1

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	9901	9804	9709	9615	9524	9434	9346	9259	9174	9091	8929	8772	8696	8621	8475	8333	8065	7813	7576	7353
2	9803	9612	.9426	9246	9070	8900	8734	8573	8417	8264	7972	7695	7561	7432	7182	6944	6504	6104	5739	5407
3	9706	9423	9151	8890	8638	8396	.8163	7938	7722	7513	7118	6750	6575	6407	6086	5787	5245	4768	4348	3975
4	.9610	9238	.8885	8548	8227	7921	7629	7350	7084	6830	6355	.5921	5718	5523	5158	4823	4230	3725	3294	2923
5	.9515	9057	8626	8219	7835	7473	.7130	6806	6499	6209	5674	5194	4972	4761	4371	4019	3411	2910	2495	2149
6	9420	8880	8375	7903	7462	7050	6663	6302	5963	5645	5066	4556	4323	4104	3704	3349	2751	2274	1890	.1580
7	.9327	8706	8131	7599	7107	.6651	6227	5835	5470	5132	4523	3996	3759	3538	3139	2791	2218	1776	1432	1162
8	.9235	8535	7894	7307	6768	.6274	5820	5403	5019	4665	4039	3506	3269	3050	2660	2326	.1789	1388	1085	0854
9	9143	8368	7664	7026	6446	5919	.5439	5002	4604	4241	3606	.3075	2843	2630	2255	1938	1443	1084	0822	0628
10	9053	8203	7441	6756	6139	5584	5083	4632	4224	3855	3220	.2697	.2472	.2267	1911	1615	1164	0847	0623	0462
11	8963	8043	7224	6496	5847	5268	4751	4289	3875	3505	2875	2366	2149	1954	1619	1346	0938	0662	.0472	0340
12	8874	7885	7014	6246	5568	4970	4440	3971	3555	.3186	2567	2076	1869	1685	1372	1122	0757	.0517	.0357	0250
13	8787	7730	.6810	.6006	.5303	4688	4150	3677	3262	2897	2292	1821	.1625	.1452	1163	0935	0610	0404	0271	.0184
14	8700	7579	6611	.5775	5051	4423	3878	3405	2992	2633	2046	1597	1413	1252	0985	0779	0492	0316	0205	0135
15	8613	7430	6419	5553	.4810	4173	3624	3152	2745	2394	1827	1401	.1229	.1079	0835	0649	0397	0247	0155	0099
16	8528	7284	6232	5339	4581	3936	3387	2919	2519	2176	1631	1229	1069	0930	0708	0541	0320	0193	0118	0073
17	8444	7142	6050	5134	.4363	3714	3166	.2703	2311	1978	1456	1078	0929	0802	.0600	0451	0258	0150	0089	0054
18	8360	7002	5874	4936	4155	3503	2959	2502	.2120	1799	1300	0946	0808	0691	0508	0376	0208	0118	0068	0039
19	8277	6864	5703	4746	3957	3305	2765	2317	1945	1635	1161	0829	0703	0596	0431	0313	.0168	0092	0051	0029
20	8195	6730	5537	4564	3769	3118	2584	2145	1784	1486	1037	0728	0611	.0514	.0365	0261	0135	0072	0039	.0021
25	7798	6095	4776	3751	2953	2330	1842	1460	1160	0923	0588	0378	0304	0245	0160	0105	0046	0021	0010	0005
30	7419	5521	4120	3083	2314	1741	1314	0994	0754	0573	0334	0196	0151	0116	0070	0042	0016	0006	0002	0001
40	6717	4529	3066	2083	1420	0972	0668	.0460	0318	0221	0107	0053	.0037	0026	0013	0007	.0002	0001	•	•
50	6080	3715	2281	1407	0872	0543	0339	0213	0134	.0085	0035	.0014	.0009	0006	0003	.0001	•	•	•	*
60	5504	3048	1697	0951	0535	0303	0173	0099	0057	0033	0011	0004	0002	0001						

Table A.2 Present Value of an Annuity of \$1 Per Period for n Periods

payments	1%	2%	3%	4%	5%	6%	_7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0 9901	0 9804	0 9709	0 9615	0 9524	0 9434	0 9346	0 9259	0 9174	0 9091	0.8929	0.8772	0 8696	0.8621	0.8475	0.8333	0 8065	0 7813	0 7576
2	1 9704	1 9416	1 9135	1 8861	1 8594	1 8334	1 8080	1 7833	1 7591	1 7355	1 6901	1 6467	1 6257	1 6052	1 5656	1 5278	1 4568	1 3916	1 3315
3	2 9410	2 8839	2 8286	2 7751	2 7232	2 6730	2 6243	2 5771	2 5313	2 4869	2 4018	2 3216	2 2832	2 2459	2 1743	2 1065	1 9813	1 8684	1 7663
4	3 9020	3 8077	3 7171	3 6299	3 5460	3 4651	3 3872	3 3121	3 2397	3 1699	3 0373	2 9137	2 8550	2 7982	2 6901	2 5887	2 4043	2 2410	2 0957
5	4 8534	4 7135	4 5797	4 4518	4 3295	4 2124	4 1002	3 9927	3 8897	3 7908	3 6048	3 4331	3 3522	3 2743	3 1272	2 9906	2 7454	2 5320	2 3452
6	5 7955	5 6014	5 4172	5 2421	5 0757	4 9173	4 7665	4 6229	4 4859		4 1114	3 8887	3 7845	3 6847	3 4976	3 3255	3 0205	2 7594	2 5342
7	6 7282	6 4720	6 2303	6 0021	5 7864	5 5824	5 3B93	5 2064	5 0330	4 8684	4 5638	4 2883	4 1604	4 0386	3 8115	3 6046	3 2423	2 9370	2 6775
8	7 6517	7 3255	7 0197	6.7327	6 4632	6 2098	5 9713	5 7466	5 5348	5 3349	4 9676	4 6389	4 4873	4 3436	4 0776	3 8372	3 4212	3 0758	2 7860
9	■ 5660	8 1622	7 7861	7 4353	7 1078	6 8017	6 5152	6 2469	■ 9952	5 7590	5 3282	4 9464	4 7716	4 6065	4 3030	4 0310	3 5655	3 1842	2 8681
10	9 4713	8 9826	8 5302	8 1109	7 7217	7 3601	7 0236	6 7101	6 4 1 7 7	6 1446	5 6502	5 2 1 6 1	5 0188	4 8332	4 494 1	4 1925	3 6819	3 2689	2 9304
11	10 3676	9 7868	9 2526	■ 7605	8 3064	7 8869	7 4987	7 1390	6 8052	6 4951	5 9377	5 4527	5 2337	5 0286	4 6560	4 3271	3 7757	3 3351	2 9776
12	11 2551	10 5753	9 9540	9 3851	8 8633	■ 3838	7 9427	7 5361	7 1607	6 8137	6 1944	5 6603	5 4206	5 1971	4 7932	4 4392	3 8514	3 3868	3 0133
13	12 1337	11 3484	10 6350	9 9856	9 3936	8 8527	8 3577	7 9038	7 4869	7 1034	6 4235	5 8424	5 5831	5 3423	4 9095	4 5327	3 9124	3 4272	3 0404
14	13 0037	12 1062	11 2961	10 5631	9 8986	9 2950	8 7455	8 2442,	7 7862	7 3667	6 6282	6 0021	5 7245	5 4675	5 0081	4 6 1 0 6	3 9616	3 4587	3 0609
15	13 8651	12 8493	11 9379	11 1184	10 3797	9 7122	9 1079	■ 5595	8 0607	7 6061	6 8 1 0 9	6 1422	5 8474	5 5755	5 0916	4 6755	4 0013	3 4834	3 0764
16	14 7179	13 5777	12 5611	11 6523	10 8378	10 1059	9 4466	8 8514	■ 3126	7 8237	6 9740	6 2651	5 9542	5 6685	5 1624	4 7296	4 0333	3 5026	3 0882
17	15 5623	14 2919	13 1661	12 1657	11 2741	10 4773	9 7632	9 1216	8 5436	8 0216	7 1196	6 3729	6 0472	5 7487	5 2223	4 7746	4 0591	3 5 1 7 7	3 0971
18	16 3983	14 9920	13 7535	12 6593	11 6896	10 8276	10 0591	9 3719	8 7556	8 2014	7 2497	6 4674	6 1280	5 8178	5 2732	4 8 1 2 2	4 0799	3 5294	3 1039
19	17 2260	15 6785	14 3238	13 1339	12 0853	11 1581	10 3356	9 6036	8 950↑	8 3649	7 3658	6 5504	6 1982	5 8775	5 3 1 6 2	4 8435	4 0967	3 5386	3 1090
20	18 0456	16 3514	14 8775	13 5903	12 4622	11 4699	10 5940	9 8 1 8 1	9 1285	8 5136	7 4694	6 6231	6 2593	5 9288	5 3527	4 8696	4 1103	3 5458	3 1129
25	22 0232	19 5235	17 4131	15 6221	14 0939	12 7834	11 6536	10 6748	9 8226	9 0770	7 8431	6 8729	6 4641	6 0971	5 4669	4 9476	4 1474		3 1220
30	25 8077	22 3965	19 6004	17 2920	15 3725	13 7648	12 4090	11 2578	10 2737	9 4269	8 0552	7 0027	6 5660	6 1772	5 5 1 6 8	4 9789	4 1601	3 5693	3 1242
40	32 8347	27 3555	23 1148	19 7928	17 1591	15 0463	13 3317	11 9246	10 7574		8 2438	7 1050	6 64 18	6 2335	5 5482	4 9966	4 1659	3 5712	3 1250
50	39 1961	31 4236	25 7298	21 4822	18 2559	15 7619	13 8007	12 2335	10 9617	9 9 1 4 8	8 3045	7 1327	6 6605	6 2463	5 5541	4 9995	4 1666	3 5714	3 1250
60	44.9550	34 7609	27 6756	22 6235	18 9293	16 1614	14 0392	12 3766	11 0480	9 9672	8 3240	7 1401	6 6651	6 2482	5 5553	4 9999	4 1667	3 5714	3 1250

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Table A.3 Future Value of \$1 at the End of n Periods

1 10100 10200 10300 10400 10500 10600 10700 10800 10700 110800 11000 11200 11200 11400 11500 11600 11600 1200 1200 1200 1200 1200	1 2800		
3 10303 10612 10927 17249 11576 11910 12250 12597 12950 13310 14049 14815 15209 15609 15630 17280 13906 4 10406 10824 11255 11699 12155 12625 13108 13805 14116 14641 15735 16890 17490 18106 13938 20736 23642 5 10510 11041 11593 12167 12763 13382 14026 14593 15386 16105 17673 19754 20114 21003 22787 24883 29316 6 10615 11262 11941 12653 13401 14185 15007 15869 16771 17716 19738 21950 23131 24364 2696 29860 36352 7 10721 1487 12299 13159 14071 15036 16058 17138 18280 13487 22107 25023 76600 24267 31855 35832 45077 8 10629 17177 12688 13686 14775 15938 17182 18509 19926 21436 24760 28526 30590 32784 37588 4298 58930 9 10937 1951 13048 14233 15513 16895 18385 19990 21719 23579 27731 32519 35179 3630 4355 51588 69310 10 11046 12190 13439 14802 16289 17908 19672 21589 23674 25937 31058 37072 40456 44114 52338 61917 85944  11 11157 12434 13842 15395 17103 18983 21049 23316 25804 28531 34785 42267 46524 51173 61759 74301 10657 12 11268 12882 14259 16010 17959 20122 2522 25182 28127 31384 38950 48179 53602 59360 77876 89161 13214 11 1157 12434 13842 15395 17103 18983 21049 23316 25804 28531 34785 42267 46524 51173 61759 74301 10657 12 11268 12882 14259 16010 179599 20122 25252 25182 28127 31384 38950 48179 53602 59360 77876 89161 13214 11 1157 12434 13842 15395 17103 18980 21049 23316 25804 28531 34785 42267 46524 51173 61759 74301 10657 12 11268 12882 14259 16010 179599 20122 25252 25182 28127 31384 38950 48179 53602 59360 77876 89161 13214 11 1157 12434 13842 15395 15126 12392 42098 27796 30558 34527 34385 54358 54585 61588 65994 10699 16386 14 11495 13395 15126 17317 19799 27809 27809 37875 48871 5275 48871 5275 79875 10147 12839 20319		1 3200	1 360
4 10406 10824 11255 11699 12155 12625 13108 13605 14116 14641 15735 16890 17490 18106 19388 20736 23642 5 10510 1041 11593 12167 12763 13382 14026 14993 15386 16105 17673 19254 20114 21003 22878 24883 29316 6 10615 11262 11941 12653 13401 14185 15007 15869 16771 17716 19738 21950 23313 24364 26996 29860 36355 7 10721 14487 12299 13159 14071 15036 16658 17138 18280 19487 22107 25023 26800 26262 31855 35893 45977 8 10629 17177 12688 13686 14775 15938 17182 18809 19926 21436 24760 28526 30590 32780 37589 49998 55895 9 10629 17177 12688 13686 14775 15938 17182 18809 19926 21436 24760 28526 30590 32780 37589 4998 55895 9 10637 11951 13048 14233 15513 16895 18385 19990 21719 23679 27731 32519 35179 38030 44355 51598 658310 10 11046 12190 13439 14802 16289 17908 19672 21589 23674 25937 37058 37072 40456 4414 52338 61937 85944 11 11157 12434 13842 15395 17103 18983 21049 23316 25804 28531 34785 42262 46524 51173 61759 74301 10657 12 11268 12682 14259 16010 17959 20122 27522 25182 28127 31384 38805 48179 53502 59360 77876 8915 13214 1318 12393 61485 16561 18856 12399 42090 27796 30558 34527 34355 54815 54826 56858 65941 0699 16386 144 11495 13195 15126 17317 19799 22609 27865 29372 33477 34835 55815 61588 65894 10699 16386 144 11495 13195 15126 17317 19799 22609 27865 29372 33477 37757 48871 52613 7057 79875 10147 12839 20318	1 6384	1 7424	
5 10510 11041 11593 12167 12763 13382 14026 14693 15386 16105 17623 19254 20114 21003 22878 24883 29316 6 10615 11262 11941 12653 13401 14185 15007 15869 16771 17716 19738 21950 23131 24364 26996 29860 36352 7 10721 1487 12799 13159 14071 15036 16058 17138 18280 19487 22107 25023 26800 26262 31855 318937 45077 8 10629 17171 12686 13686 14775 15938 17182 18509 19962 21436 24760 28565 30590 32769 37589 27988 58895 9 10937 11951 13048 14233 15513 16895 18385 19990 21719 23579 27781 3789 3789 3789 43758 61917 85948 10 11046 12190 13439 14802 16269 17908 19672 21589 23674 25937 31058 37072 40456 4414 52338 61917 85948 11 11157 12434 13842 15395 17103 18983 21049 23316 25804 25831 34785 42667 4524 5173 61759 74301 10 687 12 11268 12882 14259 16010 17959 20122 27522 25182 28127 31384 38860 48179 53602 53600 72876 8916 13214 13 11381 12936 14885 16561 18856 12399 24098 27196 30598 34527 54624 61528 6888 55994 10 699 16 3866 14 11495 13195 15176 17317 19799 26002 25602 25722 33312 33478 54246 61528 6888 55994 10 699 16 3866 14 11495 13195 15176 17317 19799 26002 25722 25182 28127 31384 38860 48179 53602 53600 72876 89161 13 2146 11495 13195 15176 17317 19799 26002 25720 25722 33487 25737 48871 52731 77797 78875 77876 13181 12936 14885 16561 18856 12999 27996 30598 34527 54873 57757 54875 57	2 0972	2 3000	2 5 1 5
6 10615 11262 11941 12653 13401 14185 15007 15869 16771 17716 19738 21950 23131 24364 26996 28860 36352 7 10721 1487 12729 13159 14071 15036 16058 17138 18280 19487 22107 25023 26600 28262 31835 35832 45077 8 10829 17177 12688 13686 14775 15938 17182 18509 19326 21436 24780 28526 30590 32784 37589 42988 55895 9 10937 1951 13048 14233 15513 16895 18385 19990 21719 23579 27731 32519 35179 36300 42855 51598 69310 10 11046 12190 13439 14802 16289 17908 19672 21589 23674 25937 31058 37072 40456 44114 52338 61917 85944 11 11157 12434 13842 15395 17103 18983 21049 23316 25804 28531 34785 42262 46524 51173 61759 74301 10657 12 11268 12682 14259 16010 17959 20122 27522 25182 28127 31384 38850 48179 53500 59300 78876 8916 138 138 12936 14885 16651 18856 21239 24098 27196 30558 34535 54635 61528 6888 65944 10899 16386 14 11485 13195 15126 14885 16651 18856 21239 24098 27196 30558 34535 54635 54635 61528 6888 65944 10899 16386 14 11485 13195 15126 17317 19799 22609 27609 27678 30558 34537 54875 56815 70575 70477 12839 20318	2 6844	3 0360	
7   10721   1487   1279   13159   14071   15036   16058   17138   18280   19487   22107   25023   26600   26262   31855   35832   45077   8   10829   17177   12686   13686   14775   15938   17182   18809   19926   21436   24766   24856   30590   32794   37588   24988   58898   9   10937   1951   13048   14233   15513   16995   18185   19990   21719   23579   27731   32519   35179   36303   24355   51588   69310   10   11046   12190   13439   14802   16289   17908   19672   21589   23674   25937   31058   37072   40456   44114   52338   61917   85944   11   11157   12434   13842   15335   17103   18983   21049   23316   25804   28513   34785   4262   46524   51173   61759   74301   10657   12   11268   12682   14259   16010   17959   20122   27522   25182   28127   31384   38980   48179   53602   59360   77876   89161   13214   13   1381   12936   14685   16661   18856   21329   24098   27196   30568   34523   43635   54924   61528   66858   65894   06994   16396   61481   61485   61518   615	3 4360		
7 10721 11487 12299 13159 14071 15036 16058 17138 18280 19487 22107 25023 26600 26262 31855 35832 45077 8 10629 17171 12668 13686 14775 15938 17182 18809 19926 21436 24786 28526 30590 32794 37588 42985 51898 69310 10 10 10 10 10 10 10 10 10 10 10 10 1	4.2000	5 2000	
8   10829   1717   12688   1386   14775   15938   17182   18509   19376   2 1436   2 4760   2 8526   3 0590   3 2784   3 7589   4 2988   5 5885   5 885   5 885   3 10937   1 1951   1 3048   1 4233   15513   16895   18365   1990   2 1719   2 3579   2 7373   3 2519   3 15179   3 8030   4 4355   5 1598   6 8331   10 1046   1 2 190   1 3439   1 4802   1 6 289   1 7908   1 9672   2 1589   2 3573   3 1058   3 7072   4 0456   4 4114   5 2338   6 1917   8 19344   1 1157   1 2 434   1 3 842   1 5 395   1 7103   1 8 983   2 1049   2 3316   2 5804   2 8531   3 4785   4 2962   4 6524   5 1173   6 1759   7 4301   10 657   1 2 11768   1 2682   1 4259   1 6 1010   1 7959   2 0 122   2 7522   2 5182   2 8127   3 1384   3 8860   4 8179   5 3502   5 3360   7 7876   8 9 151   13 2 14 13   1 3 1381   1 2 336   1 4885   1 6865   1 8856   2 1299   2 4098   2 7196   3 0558   3 4527   4 3655   5 4924   6 1528   6 8685   8 5894   10 699   1 6 386   1 8 1485   1 4 1465   1 3 195   1 5 15 16   1 7 317   1 9799   2 2 609   2 5 785   2 9372   3 3417   3 7975   4 8871   5 2 613   7 0757   7 9875   1 0 147   1 2 839   2 0 318   1 5 15 16   1 5 15 16   1 5 15 16   1 5 16 16   1 6 865   1 8 865   1 8	5 6295	5 2899	6 327
9 10937 11951 13048 14233 15513 16895 18385 19990 21719 23579 27731 32519 35179 36030 44355 51598 69310 10 11046 12190 13439 14802 16299 17908 19672 21589 23674 25937 37058 37072 40456 44114 52338 61917 85944 11157 12434 13842 16395 17103 18983 21049 23316 25804 28531 34785 4262 46524 51173 61759 74301 10657 11268 12682 14259 16010 17999 20122 22522 25182 25127 31384 33980 48179 53502 59300 77876 89181 13214 13181 12336 14685 16651 18856 21329 24998 27196 30558 34523 43635 54924 61528 66858 65899 40599 16386 614 11495 13195 15126 17317 19799 22609 25785 29372 33417 37975 48871 626152 66858 65994 10599 16386 14 11495 13195 15126 17317 19799 27609 27609 27609 37787 48871 67610 17610 13610 15590 1890 27699 37600 13787 48871 67610 17610 13610 15590 1890 27609 37600 13787 48871 67610 17610 13650 15590 1890 27609 37600 13787 48871 67610 13610 13610 15590 1890 27609 37600 13787 48871 67610 13610 13610 15590 1890 37600 13787 48871 67610 13610 13610 15590 1890 37600 13787 48871 67610 13610 13610 15590 1890 37600 13787 48871 67610 13610 13610 15590 1890 37600 13787 48871 67610 13610 13610 15590 1890 37600 37600 13787 48871 67610 13610 13610 15590 1890 37600 37600 13787 48871 67610 13610 13610 15590 1890 37600		6.9826	8 605
10 11046 12190 13439 14802 16289 17908 19672 21589 23674 25937 31058 37072 40456 44114 52338 61917 85944  11 11157 12434 13842 15395 17103 18983 21049 23316 25804 28531 34785 42262 46524 51173 61759 74301 10.657  12 11268 12682 14259 16010 17959 20122 27522 25182 28127 31384 38950 48179 5.3502 59360 77876 89151 13214  13 11381 12386 14885 16651 18856 21299 24089 27196 30558 34535 54924 61528 6858 85994 10.699 16.386  14 11495 13195 15126 17317 19799 22609 25785 29372 33417 3.7975 48871 5.2613 7.0757 7.9875 10.147 12.839 20.319		9 2 1 7 0	11 70
12 11268   12682   14259   16010   17959   20122   27522   25182   28127   31384   38960   48179   53502   53960   72876   9315   13214   13191   12396   14885   16656   18856   27129   24098   27196   30558   34521   43635   54924   61528   68858   85994   10899   163386   1441495   13195   15126   17317   19799   22699   25785   29372   33417   37975   48871   52613   70757   79875   10147   12839   20319   15126   13195   15126   15127   1	9 2234	12 166 16 059	15 911 21 64
12 11268   12682   14259   16010   17959   20122   27522   25182   28127   31384   38960   48179   53502   53960   72876   9315   13214   13191   12396   14885   16656   18856   27129   24098   27196   30558   34521   43635   54924   61528   68858   85994   10899   163386   1441495   13195   15126   17317   19799   22699   25785   29372   33417   37975   48871   52613   70757   79875   10147   12839   20319   15126   13195   15126   15127   1			
13 11381 1239 6 14685 16651 18856 21329 24998 27196 30558 34552 43635 54924 61528 68688 65994 10699 16.386 14 11455 13195 15126 17317 19799 27609 25785 29372 33417 37975 48871 6,2813 70757 79875 10.147 12.839 20.319		21 198	29 439
14 11495 13195 15126 17317 19799 22609 25785 29372 33417 37975 48871 62613 70757 79875 10147 12839 20319	19 342	27 982	40 03
15 1 1610 1 3650 1 15500 1 8000 2 7500		36 937	54 45
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		48 756	74 050
	40 564	64 358	100 71
16 11726 13728 16047 18730 21829 25404 29522 34259 39703 45950 61304 81372 93576 10748 14129 18488 31242	C 1 020	04.053	
17 11843 1 4002 1 6528 1 9479 2 2920 2 6928 3 1588 3 7000 4 3276 5 0545 6 8660 9 2765 10 761 12 467 16 672 22 186 38 740		84 953	136 98
18 11961 14282 17024 2 0258 2 4066 2 8543 3 3799 3 9960 4 7171 5 5599 7 6900 10 575 12 375 14 462 19 673 26 623 48 038		112 13	186 27
19 1 2081 1 4568 1 7535 2 1068 2 5270 3 0256 3 6165 4 3157 5 1417 6 1159 8 6128 12 055 14 231 16 776 23 214 31 948 59 567	85 070 108 89	148 02	253 33
20 1 2202 1 4859 1 8061 2 1911 2 6533 3 2071 3 8697 4 6610 5 6044 6 7275 9 6463 13 743 16 366 19 460 27 393 38 337 7 3 864		195 39	344 53
2 22 2 300 20 20 20 72 72 700	139 37	257 91	468 57
21 1 2324 1 5157 1 8603 2 2788 2 7860 3 3996 4 1406 5 0338 6 1088 7 4002 10 803 1 5 667 18 821 22 574 32 323 46 005 91 591	178 40	340 44	007.74
22 1244/ 15460 19161 23699 29253 36035 44304 54365 66586 \$1403 12100 17861 21644 26186 38142 55206 11352			637 26
23 1 2572 1 5769 1 9736 2 4647 3 0715 3 8197 4 7405 5 8715 7 2579 8 9543 13 552 20 361 24 891 30 326 45 007 65 247 140 93		449 39	866 67
24 12697 16084 2 0328 2 5632 3 2251 4 0489 5 0724 6 3412 7 9111 9 8497 15 178 23 217 78 625 35 236 63 109 37 405		593 19	1178 6
25 1 2824 1 6406 2 0938 2 6658 3 3864 4 2919 5 4274 6 8485 8 6231 10 834 17 000 26 461 32 918 40 874 62 668 95 396 276 54		783 02	1602 9 2180 0
20 18873 1884 8175		. 555 5	2 100 0
27 13082 17069 2 2213 2 8834 3 7335 4 8223 6 2139 2 9881 10 346 13 110 23 174 3 3 6 3 7 6 3 6 4 7 4 1 4 7 3 9 4 8 114 4 7 3 9 4 8 114 4 7 3 9 4 8 114 4 7 3 9 4 8 114 4 7 3 9 4 8 114 4 7 3 9 4 8 1 1 4 4 7 3 9 4 8 1 4 4 7 8 8 1 8 1 4 8 1 4 7 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	612 99	1364 3	2964 9
28 13213 17410 2 2970 7 9997 3	784 63	1800 9	4032 2
29 13345 17758 23566 31187 41161 54184 71143 92173 12173 15 903 35 204 90 000 63 800 102 96 164 84 412 86	10043	2377 2	5483 8
	1285 5	31379	7458 0
250 3.00 50 50 50 50 50 50 50 50 50 50 50 50 5	1645.5	41420	10143
40 1 4889 2 2080 3 2620 4 8010 7 0400 10 285 14 974 21 724 31 409 45 259 93 050 188 88 267 86 378 72 750 37 1469 7 6465 8			
50 16446 2 6916 4 3839 7 1067 11 467 18 420 29 457 46 901 74 357 117 39 299 00 300 73 1003 6 1070 3		66520	
60 1816/ 3 2810 5 8916 10 519 18 679 32 987 57 946 101 25 176 02 204 48 927 52 3287 3 3287 3 3287 3	•	•	
**************************************			-

Table A.4 Sum of an Annuity of \$1 Per Period for n Periods

Number of																				
Periods	1%	2%		4%	5 %	6 %	7%	8 %	9%	10 %	12 %	14 %	15 %	16%	18 %	20 %	24 %	28 %	32 %	20.00
1	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	3 0000	1.0000	1.0000					32 %	36 %
2	2 0100	+ 05.00	2 0300	2 0400	2 0500	2 0600	2 0700	2 0800	2 0900	2 1000		2 1400	2 1500		1 0000	1 0000	1 0000	1 0000	1 0000	1 0000
3	3 0301	3 0604	3 0909	3 1216	3 1525	3 1836	3 2 1 4 9	3 2464	3 2781		3 3744	3 4396	3 4725	2 1600	2 1800	2 2000	2 2400	2 2800	2 3200	2 3600
4	4 0604	4 1216	4 1836	4 2465	4 3101	4 3746	4 4399	4 5061	4 5731					3 5056	3 5724	3 6400		3 9184	4 0624	4 2096
5	5 1010	5 2040	5 3091	5 4163	5 5256	5 6371	5 7507	5 8666	5 9847		6 3528	6 6101	6 7424	5 0665 6 8771	5 2154 7 1542	5 3680 7 4416	5 6842 8 0484	6 0156 8 6999	6 3624 9 3983	6 7251
6	6 1520	6 3081	6 4684	6 6330	6 8019	6 9753	7 1533	7 3359	7.5222	2 2										10 140
7	7 2135	7 4343	7 6625	7 8983	8 1420	8 3938	8 6540		7 5233		8 1152	8 5355	8 7537	8 9775	9 4420	9 9299	10 980	12 135	13 405	14 798
8	8 2857	8 5830	8 8923	9 2142	9 5491	9 8975	10 259				10 089	10 730	11 066	11 413	12 141	12 915	14 615	16 533	18 695	21 126
9	9 3685	9 7546	10 159	10 582	11 026	11 491	11 978	10 636	11 028	11 435	12 299	13 232	13 726	14 240	15 327	16 499	19 122	22 163	25 678	
10	10 462	10 949	11 463	12 006	12 577	13 180	13 816	12 487 14 486	13 021	13 579		16 085	16 785	17 518	19 085	20 798	24 712	29 369	34 895	41 435
11	11 566	10.00			12 211		12 010	14 400	15 192	15 937	17 548	19 337	20 303	21 321	23 521	25 958	31 643	38 592	47 061	57 351
12	12 682	12 168	12 807	13 486	14 206	14 971	15 783	16 645	17 560	18 531	20 654	23 044	24 349	25 732	20.255					
13	12 682	13 412	14 192	15 025	15 917	16 869	17 888	18 977		21 384	24 133	27 270	29 001	30 850	28 755	32 150		50 398	63 121	78 998
14		14 680	15 617	16 626	17 713	18 887	20 140		22 953	24 522	28 029	32 088	34 351		34 931	39 580	50 894	55 510	84 320	108 43
15	14 94 7 16 096	15 973	17 086	18 291	19 598		22 550		26 019	27 975	32 392	37 581	40 504	36 786	42 218	48 496	64 109	84 852	112 30	148 47
15	10.090	17 293	18 598	20 023	21 578	23 276	25 129	27 152	29 360				47 580	43 672 51 659	50 818 60 965	59 195 72 035	80 496 100 81	109.61	149 23	202 97
16	17 257	18 639	20.156	21 824	22 65.7	25 672	22 000											147 30	197 99	276 97
17	18 430	20 012	21 761		25 840	28 212	27 888	30 324	33 003	35 949	42 753	50 980	55 717	60 925	72 939	87 442	126.01	181 86	200.04	
18	19 614		23 414		28 132		30 840	33 750	36 973	40 544	48 883	59 117	65 075	71 6.73	87 068	105 93	157 25	233 79	262 35	377 69
19	20 810		25 116		30 539	30 905	33 999	37 450	41 301	45 599	55 749	68 394	75 836	84 140	103 74	128 11	195 99		347 30	514 66
20	22 019		26 870		33 066	33 760	37 379			51 159	63 439	78 969	88 211	98 603	123 41	154 74	244 03	300 25 385 32	459 44	700 93
			100.0	23/10	22 000	36 785	40 995	45 762	51 160	57 275	72 052	91 024	102 44	115 37	146 62	186 68	303.60	494 21	607 47	954 27
21	23 239	25 783	28 676	31.969	35 719	39 992	44 DCr									-00 00	202 00	434 21	802 86	1298 8
22	24 471	27 299	30 536	34 248		43 392	44 865 49 005	50 422			81 698	104 76	118 81	134 84	174 02	225 02	377.46	633 59	1060 7	1707.0
23	25 716	28 845	32 452		41 430	46 995		55 456	62 873	71 402	92 502	120 43	137 63	157.41	206.34	271 03	469 05	811 99	1401 2	1767 3
24	26 973	30 421	34 426		44 502	50 815	53 436	60 893	69 531	79 543	104 60	138 29	159 27	183 60	244 48	326 23	582 62	1040 3		2404 6
25	28 243	32 030	36 459	41 645			58 176	66 764	76 789	88 497	118 15	158 65	184 16	213 97	289 49	392 48	723 46	1332 6	1850 6	32713
				41 043	47 727	20 864	63 249	73 105	84 700	98 347	133 33	181 87	212 79	249.21	342 60		898 09	1706.8	2443 8	
26	29 525	33 670	38 553	44 311	51 113	59 156	CD 636										030 03	17000	3226 8	6052 9
27	30 820	35 344				63 705		79 954	93 323	109 18	150 33	208 33	245 71	290 08	405 27	567.37	11146	2185.7	4000 4	
28	32 129	37 051				68 528		87 350	102 72	121 09	169 37	238 49	283 56	337 50	479 22	68) 85	1383 1	2798 7	4260 4	
29	33 450	38 792			62 322		80 697	95 338	112 96	134 20	190 69	272 88	327 10	392 50	566 48	819 22	1716.0		5624 7	
30	34 784		47 575			73 639	87 346	103 96	124 13	148 63	214 58	312 09	377 16	456 30	669 44	984 06	2128 9	3583 3 4587 6	7425 6	
				30 001	00 438	79 058	94 460	113.28	136 30	164 49	241 33	356 78	434 74	530 31	790 94	11818	2640 9		9802 9	
	48 886	60 402	75 401	95 025	120 79	154 76	100.55	21.0.01									2040 9	5873 2	12940	28172 2
50	64 463	84 579	112 79		209.34	290 33		259 05	337 88	442 59	767 09	1342 0	1779 0	2360 7	4163.2	7343 8	22728	69377		
60	81 669	114 05	163 05					573 76	815 08	11639	2400 0	4994 5	7217 7	10435	21813	45497	* *	053//		
					499 90	533 12	813.52	1253 2	1944 7	3034 8	74716	18535	29219	46057						

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMADA

# FINANCIAL MANAGEMENT 316 MARTHATHAN June, 1985 EXAMINER'S COMMENTS

#### General

Some students have difficulty interpreting their numerical results. Effort should be placed on understanding what the numbers mean when preparing for these examinations.

### Specific

- Q.1 (a) This question was handled well by the majority of students. Some students lost marks for not realizing that the market premium exists because warrants, relative to common shares, provide a greater return if the stock price increases.
  - (b) Many students used the wrong formula for the price of the warrant; thus, they were unable to explain why the premium declines as the price of the stock increases. Some students did not illustrate their answer.
- Q.2 (a) This was a relatively easy question and it was well handled by most students.
  - (b) This was a relatively easy question and it was well handled by most students.
  - (c) Some students had difficulty interpreting their results. Once they found  ${\rm k}_{\rm DD}$  = 18%, they were unsure as to whether they should recommend its purchase or not.
- Q.3 Students who had studied Lesson 8 (Section 8-4) were able to answer this question well.
- Q.4 (a) The three parts of this question were handled well by students.

  A few had difficulty with part (b) because they were unsure as to which conversion rate to use.
  - (b) Some students did not recognize that even though alternative C has the lowest cost, it is also the riskiest of the three.
- Q.5 Students who had studied Lesson 9 (Section 9-5) were able to answer the question. Many students wasted time explaining what was meant by optimal dividend policies.
- Q.6 Many students had problems handling the calculations required in this question. Some students' work was very disorganized.
- Q.7 This question was well handled by most students.
- Q.8 Many students did not evaluate the proposals in terms of the incremental IRR method.

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## FINANCIAL MAIN WAY 316 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 0.1

- (4) (a) The market premium exists because warrants, relative to common shares, will provide a greater return if the price of the stock increases. In the event the price of the stock falls, the total loss potential from the purchase of the warrant is much less than from the purchase of the stock. The market premium is the price investors pay for the large capital gains potential combined with the loss limitation derived from holding warrants.
- (8) (b) The potential for large capital gains and the loss protection feature decline as the price of the stock increases. This is the reason why the market premium decreases. As the share price rises so will the price of the warrant. High warrant prices, in turn, reduce leverage opportunities since the possibility for large percentage gains decrease if the starting price is already high. High warrant prices expose the investor to greater losses.

Assume a warrant entitling the holder to purchase one share at an exercise price of \$20. If the current stock price is \$22 the formula value of the warrant is:

$$W_{22} = 1 \times (22-20)$$

= 2

If the price of the stock increases five dollars from \$22 to \$27, the formula value of the warrant is:

$$W_{27} = 1 \times (27-20)$$

= 7

An investor purchasing a warrant at its formula value when the stock price is \$22 and selling it at its formula value when the stock price is \$27 will realize a:

$$\frac{7-2}{2}$$
 x 100 = 250% return on investment

relative to a

$$\frac{27-22}{22}$$
 x 100 = 22.7% return on the equity investment.

If the market price of the stock increases an additional five dollars from \$27 to \$32, the formula value of the warrant is:

$$W_{32} = 1 \times (32-20)$$
  
= \$12

An investor purchasing a warrant where the stock is selling for \$27 and selling it when the stock is worth \$32 will realize a

 $\frac{12-7}{7}$  x 100 = 71.4% return on investment, assuming the investor can transact at the formula values of the warrant. This compares to a:

$$\frac{32-27}{27}$$
 x 100 = 15.6% return on the equity investment.

The possibility for large percentage gains from holding the warrant has decreased as the price of the stock increased. This is the reason for a lower premium.

When the price of the stock increased the investor exposed a larger amount of capital to loss (\$7 instead of \$2). This is another reason for a lower premium.

MARKS: (3) for correct explanations

(5) for correct illustrations

12 Q.2 The fractions of the total fund invested in each security are:

Stock	Fraction	Calculation
AA	• 125	100,000/800,000
BB	• 250	200,000/800,000
CC	• 625	500,000/800,000

(3) (a) The beta of the fund, bf, will equal the weighted average of the betas of the three securities:

$$b_{f} = \sum_{i=1}^{3} w_{i}b_{i}$$

$$b_{f} = .125 \times 1.2 + .250 \times 2.0 + .625 \times .9$$

$$b_{f} = 1.2125$$

MARKS: (1) for recognizing the beta of the fund equals the weighted average of the stock's betas

(2) for calculating bf correctly

(3) (b) The expected rate of return of the fund,  $\hat{k}_f$ , will equal the weighted average of the securities' expected returns:

$$\hat{k}_{f} = \sum_{i=1}^{3} w_{i} \hat{k}_{i}$$

$$\hat{k}_{f} = .125 \times 15.6 + .250 \times 22.0 + .625 \times 13.2$$

$$= 15.7%$$

MARKS: (1) for recognizing the fund's expected return equals the weighted average of the stock's expected returns (2) for calculating kf correctly

(6) (c) The expected return for stock DD using the SML equation is

$$\hat{k}_{DD} = 6 + (14 - 6) \times 1.5$$
= 18%

Since stock DD promises a return of 20% which is greater than  $k_{\rm DD}$  management should purchase the stock.

**MARKS:** (4) for correctly calculating  $k_{\rm DD}$  (2) for establishing that the stock should be purchased

S316J85

Q.3 When  $k_a$  is assumed to be the opportunity cost associated with depreciation generated funds, we do not need to include this source when calculating the average cost of capital. The reason follows from simple algebra, where  $k_a$  is a linear function of  $k_a$ ,  $k_s$ , and  $k_d$ . Rearranging terms results in  $k_a$  being a linear function of  $k_s$  and  $k_d$  only.

To illustrate this point, assume the firm will raise \$100 million, \$50 from depreciation generated funds, \$20 from retained earnings and \$30 from debt. The costs are  $k_a$ ,  $k_s$  and  $k_d$  for these three sources respectively. Thus,  $k_a$  as a linear function of  $k_a$ ,  $k_s$  and  $k_d$  can be expressed as:

$$k_a = \frac{50}{100} \times k_a + \frac{20}{100} \times k_s + \frac{30}{100} \times k_d (1 - T)$$

Rearranging terms so as to express  $k_{\mbox{\scriptsize a}}$  as a linear function of  $k_{\mbox{\scriptsize S}}$  and  $k_{\mbox{\scriptsize d}}$  we have:

$$k_a (1 - 50) = \frac{20}{100} k_s + \frac{30}{100} k_d (1 - T)$$

Multiplying the entire equation by  $\frac{100}{50}$  we obtain

$$k_a = \frac{20}{50} k_s + \frac{30}{50} k_d (1 - T)$$

Thus,  $k_a$  can be expressed as a linear function of  $k_s$  and  $k_d$  only and we can ignore depreciation generated funds when the opportunity cost associated in these funds is  $k_a$ .

- **MARKS:** (4) for recognizing that we ignore depreciation generated funds when  $k_a$  is assigned as the opportunity cost associated with these funds
  - (6) for example illustrating the relevant algebraic manipulations

10

15 Q.4

### (10) (a) Alternative A

The company exchanges 542,000 (1.355 x 400,000) Canadian dollars for 400,000 American dollars at the end of 12 months. This end-of-period cost in Canadian dollars is known at time 0.

### Alternative B

At the end of 12 months, 400,000 American dollars are needed. Thus, an amount X of American dollars must be invested in the United States to obtain the 400,000 American dollars needed. The amount X is obtained by solving

X (1 + .125) = 400,000

x = \$355,555

The Canadian dollar equivalent of 355,555 American dollars is 478,577 Canadian dollars (355,555 x 1.3460). Thus, alternative B entails borrowing 478,577 Canadian dollars, converting them to American dollars and investing them at 12.5% in the U.S. At the end of the year, the Canadian dollar amount which must be repaid will be \$543,185 obtained as 478,577 (1 + .135). The amount of the loan to be repaid is known with all certainty at time 0.

#### Alternative C

Company officials estimate they will be able to exchange 540,000 (1.35 x 400,000) Canadian dollars for 400,000 American dollars a year from now at the spot rate of 1.3500. However, at time 0 we do not know the exact amount which will be required to make the 400,000 American dollars payment.

### MARKS:

- (2) for calculating the cost for Alternative A of 542,000 Canadian dollars
- (2) for calculating X in Alternative B
- (2) for calculating the Canadian dollar equivalent of X in Alternative B
- (2) for calculating the cost for Alternative B of 543,185 Canadian dollars
- (2) for calculating the cost for Alternative C of 540,000 Canadian dollars

- (5) (b) Alternative C has the lowest cost in terms of Canadian dollars. However, this is the riskiest of the three alternatives given. The company's estimate for the spot rate may not be accurate. The Canadian dollar may depreciate against the American dollar, and the amount which the company will exchange for the 400,000 American dollars at the end of the year may well be much higher than 540,000 Canadian dollars. The costs for Alternatives A and B are known at time 0.
  - MARKS: (2) for recognizing that the dollar cost of Alternatives
    A and B are known at time 0
    - (1) for recognizing that Alternative C has the lowest cost
    - (2) for recognizing that Alternative C is the riskiest of the three
  - 12 0.5
    - Proponents of signaling theory argue that a firm establishes an (6) optimal dividend policy by trading off the costs of additional dividend payments with the perceived increase in the market value of the firm's equity; and that dividends are used by managers to convey unambiguous signals to market participants regarding the future prospects of the firm's cash flows. Managers who have a better idea of the firm's future cash flows than anyone else have the incentive to provide the market with appropriate and unambiguous signals regarding the future of the firm. Market participants view an increase in dividends as an unambiguous signal of prospects for higher cash flows and will revise upwards the market value of the firm's equity. The size of the dividend increase is decided upon by trading off the additional cost of the dividend payment with the perceived increase in the market value of the firm's equity adjusted for taxes.
    - (6) Proponents of agency theory argue that firm's dividend payouts are a result of tradeoffs between the cost of issuing new capital and the benefits associated with the reduction of agency costs. The higher the dividend payout the more dependent the firm is on external financing. The higher the dividend payout, the lesser the need to monitor managers' behavior to prevent them from increasing their wealth at the expense of the firm's owners. The lesser the need to monitor managers' behavior, the lesser the agency costs the firm has to incur.

15 Q.6 The Sean Company will be indifferent between leasing and borrowing-to-purchase where COL = COP. Let L be the annual lease payments. The after-tax cost of debt is (1-.5) x .16 or 8%. Then,

$$= (L + L \times PVIFA_{8%,9}) (1 - .5)$$

$$= (L + 6.2469L) \times .5L$$

= 3.6235L

and

$$\texttt{COP} = \texttt{INV} - \texttt{C} \ \frac{\texttt{dT}}{\texttt{k}_{\texttt{b}} + \texttt{d}} \ \texttt{x} \ \texttt{F} - \frac{\texttt{S}}{(\texttt{1} + \texttt{k})^{\texttt{n}}} + \frac{\texttt{S}}{(\texttt{1} + \texttt{k})^{\texttt{n}}} \ \texttt{x} \ \frac{\texttt{dT}}{\texttt{K}_{\texttt{b}} + \texttt{d}}$$

= 200,000 - 200,000 x 
$$\frac{.2 \times .5}{.08 + .2}$$
 x  $\frac{(1 + .5 \times .08)}{1 + .08}$ 

= 
$$200,000 - 68,783 - 30,000 \times .2697 + 30,000 \times .2697 \times 0.35714$$

$$= 200,000 - 68,783 - 8,091 + 2,890$$

= 126,016

Thus, when COL = COP we have 3.6235L = 126,016L = \$34,776.87

- MARKS: (3) for recognizing that the Sean Company will be indifferent when COL = COP
  - (2) for COL expression
  - (2) for calculating the CCA tax shelter in the COP expression
  - (2) for calculating the PV of the disposal value in the COP expression
  - (2) for calculating the PV of the tax shelter foregone when the asset is disposed of in the COP expression
  - (2) for calculating COP
  - (2) for solving for L

14 Q.7 Factoring is a method of financing accounts receivable which typically involves the sale of accounts receivable to a factor who has no recourse to the seller of the goods.

A factoring company typically performs three functions: (1) credit checking; (2) lending; and (3) risk bearing. An agreement between the seller and the factor specifies legal obligations and procedural arrangements.

When performing the credit checking function, the factoring company receives from the seller a credit approval slip each time a buyer places an order. If the factor does not approve the sale, the seller generally refuses to fill the order. If the sale is approved, shipment is made and the invoice is stamped to notify the buyer to make payment directly to the factor.

The factor performs the lending function by making payment to the seller in advance of collection. When the goods are shipped by the seller, the factor makes funds available to the seller immediately. These funds equal the face value of the invoice minus the sum of a factoring commission, interest expense and a reserve account to cover disputes between buyers and sellers. The reserve is paid to the selling firm where the factor collects on the account.

The factor bears the risk of non-payment. If by the end of the credit period the factor has been unable to collect on the account, the factor bears the loss.

MARKS: (4) for explaining the procedures followed in credit checking

- (5) for explaining the procedures followed in lending
- (5) for explaining that the factor bears the loss of non-payment without recourse to the seller

## 10 Q.8 Rank in Terms of NPV

 $NPV_1 = 113,231 \times PVIFA_{10}, 3 - 200,000$ 

= 113,231 x 2.4869 - 200,000

= 81,594

 $NPV_2 = 459,918 \times 2.4869 - 1,000,000$ 

= 143,770

NPV2 NPV1

## Rank in Terms of IRR

The IRR of the incremental cash flows can be calculated as follows:

## Proposal 2 - Proposal |

Investment Cash Flows	800,000
Time 1	346,687
Time 2	346,687
Time 3	346-687

 $0 = -800,000 + 346,687 \times PVIFAX%,3$ 

 $PVIFA_{X%,3} = 2.3075$ 

which corresponds to an IRR between 14% and 15%. The IRR of the incremental cash flows is greater than the firm's cost of capital. Thus, Proposal 2 is preferred over Proposal 1.

Proposal 2 should be selected over Proposal 1.

MARKS: (2) for correct NPV2

- (2) for correct NPV1
- (2) for correctly calculating incremental cash flows
- (2) for correctly calculating IRR of the incremental cash flows
- (2) for correct ranking on the basis of the IRR method

100

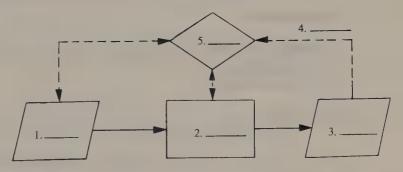
THE OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

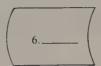
## INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION March, 1985

Marks Time: 3 Hours

- 12 Q.1 Define the following:
  - (3) (a) Automated Office Systems
  - (3) (b) Distributed Data Bases
  - (3) (c) Protocol
  - (3) (d) Read-Only Memory (ROM)
- 12 Q.2 (10)
- (a) The general concept of a system is useful in understanding data processing systems. On the following diagram fill in the elements that are generally evident in all systems.



(2) (b) An additional element is found in data processing systems. This element would be represented by the following symbol and would be attached to the number two element in the above diagram. Label this element:



Q.3 The table below is an overview of the characteristics of a floppy disk drive, a type of secondary storage device. The characteristics described are: media, primary functions, typical input/output speed ranges, typical storage capacity and major advantages and/or disadvantages of the device.

## Overview of Characteristics: Secondary Storage Peripherals and Media

Peripheral	Media	Primary	Typical I/O	Typical	Major Advantages
Equipment		Functions	Speed Range	Storage Capacity	And/or Disadvantages
Floppy disk drive	Magnetic diskette	Input/output (direct access) and secondary storage	10,000 - 20,000 cps	250,000 to 2,500,000 characters/disk	Small, inexpensive, and convenient, but slower and smaller capacity than other DASDs

## REQUIRED:

Using the same format, describe the characteristics of the following:

- (7) (a) Magnetic tape drive
- (8) (b) Magnetic disk drive
- 10 O.4

15

- (6) (a) Briefly describe the types of "bound" conditions that may affect the throughput of a modern operating system. Explain how the problems may be overcome.
- (4) (b) How would your proposed solution affect turnaround time?
- Q.5 To effect more efficient and economical order processing, the Acme Company has updated the old computerized system to a new management information system. Daily customer orders are received via mail and serve as input to the system. Orders, after they are batched and control totals established, are forwarded to the data-entry section for recording and verifying onto magnetic disk. Next, the computer sorts the transactions (items to be shipped) by customer number (first computer run). An error listing is produced along with control totals (for checking with the beginning control totals), and a transaction file (by customer number sequence) is produced. In turn, this file provides the necessary input for the combined inventory updating and billing run (second computer run). In addition to updating inventory files for items shipped, the customer master shipping orders are printed along with control totals for comparison with the first totals of customer orders established.

## REQUIRED:

On the basis of the system described above, prepare a system flowchart to illustrate the flow of inputs and outputs, from the input to the first computer run to the end of the second computer run. Where necessary, show the balancing of control totals.

- 14 Q.6 Consider the tasks involved in supervising management information services personnel.
  - (7) (a) What are some of the unique problems faced by supervisors in the management and development of management information services personnel?
  - (7) (b) What are some of the solutions to the personnel management problems in management information systems?
- Q.7 Two possible reporting locations for the information systems function in an organization are listed below. Discuss the factors in favor of, and against each location.
  - (5) (a) Under department of initial applications (e.g., accounting department)
  - (5) (b) Independent MIS department
- 12 Q.8 It is a well accepted practice to have periodic audits of the computer service organization by both internal and external auditors.
  - (4) (a) What types of controls should be examined in an audit? Provide an example of <u>one</u> of the controls mentioned.
  - (8) (b) What are the two basic approaches for auditing the data processing activities of a computer application? Briefly describe each, with reference to its advantages and disadvantages.

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**END OF EXAMINATION** 

## CERTIFIED CHIEFAL ACCOUNTANTS' ASSOCIATION OF CANADA

# INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION March, 1985 EXAMINER'S CAMPUTE

#### General

Results were generally satisfactory and most questions were capably handled by students. Questions 4 and 7 presented some difficulty to many students, and tended to clearly discriminate between those who had mastered the course and those who had not.

### Specific

- Q.1 The question involving definitions of computing terminology elicited average answers.
  - (a) Automated Office Systems This part was answered fairly well. Many students did not emphasize the integration of the various technologies; instead they merely listed some of the technologies used in the modern office.
  - (b) Distributed Data Bases (DDB) This was poorly answered. Many assumed mistakenly that DDB was identical to distributed data processing.
  - (c) Protocol This was the most poorly answered part of the question. There was a lot of confusion between protocol and prototypes.
  - (c) Read-only Memory (ROM) This was generally well answered.
- Q.2 This question on general concept of systems was very well answered.

  A majority of the students received full marks.
- This question on characteristics of storage devices drew average answers. The primary functions as well as the section on advantages and disadvantages was answered reasonably well. As for speed and capacity figures, absolutely accurate answers were not required; answers with the correct orders of magnitude would have sufficed. Yet, many students vastly underestimated both the speed and capacity of the disc as well as the tape.
- Q.4 This question on types of bound conditions was generally poorly answered. The most common incorrect answers tried to address the issues facing inefficient systems and resolving these by buying more hardware (such as faster printers, 32 bit processors etc.), redesigning the systems, or cutting down on input load or paperwork.

Continued...

Of the students who understood the question, most identified the solution correctly as overlapped processing but failed to develop the answer or explain why it would work. Few actually described the "bound conditions". Some excellent answers described the use of multitasking, multiprocessing, use of buffers or channels, dynamic job processing, and stacked job processing.

- Q.5 This question on systems flowcharts was answered very well, the average mark being about 75%. The most common mistakes included:
  - incorrect use of flowchart boxes;
  - not using direct access storage media where required;
  - not depicting the control total extraction or comparison points.
- Q.6 In general this question was well answered. The most common incorrect answers addressed issues dealing with the introduction of a computer system and the associated personnel problems, such as loss of jobs. Also, many answers described the need for user involvement, top management support, the need to specify information requirements, etc. The best answers included the following points:
  - finding and keeping qualified personnel;
  - developing company loyalty;
  - continual upgrading of skills;
  - working environment flexibility;
  - challenging projects;
  - evaluation techniques;
  - planning and control;
  - motivation techniques.
- Q.7 The question on the possible reporting locations for the information systems function was not well answered. The major difficulties were that students were unable to present the advantages or disadvantages relating to either organizational alternative.
- Q.8 The auditing/controls questions were very well answered. High marks were achieved by most students. Almost all were able to differentiate between auditing around and through the computer.

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 Q.1

- (3) (a) Automated Office Systems. Automated systems which combine word processing, data processing, telecommunications, and information systems technologies which automate much office activity. Also called electronic office or office-of-the future systems.
- (3) (b) Distributed Data Bases. The concept of distributing data bases or portions of a data base at remote sites where the data is most frequently referenced. Sharing of data is made possible through a network which interconnects the distributed data bases.
- (3) (c) Protocol. A set of rules and procedures for the control of communications in a communications network.
- (3) (d) Read-Only Memory (ROM). A basic type of semi-conductor memory used for permanent storage. Can only be read, not "written", i.e., changed.

12 Q.2

- 1) Input
- 2) Process
- 3) Output
- 4) Feedback
- 5) Control
- 6) Storage

NOTE: 2 marks each.

- 15 Q.3 Overview of Secondary Storage
  - (7) (a)

Type of Storage	Media	(1) Primary Functions	(2) Typical I/0 Speeds	(3) Typical Storage Capacity	(4) Advantages/ Disadvantages
Magnetic tape drive	Magnetic tape	Secondary storage (sequential access) and input/output	15,000-750,000 bps	Up to 180 million characters per tape reel	lnexpensive with a fast transfer rate, but only sequential access

(8) (b)

drive disk (dire	dary storage et access) and // output Data transfer: 100,000-3,000,000 bps Access time: 15-200 ms	Over 300 million characters per disk pack and a billion characters per drive	Large capacity, fast direct access storage device (DASD), but expensive
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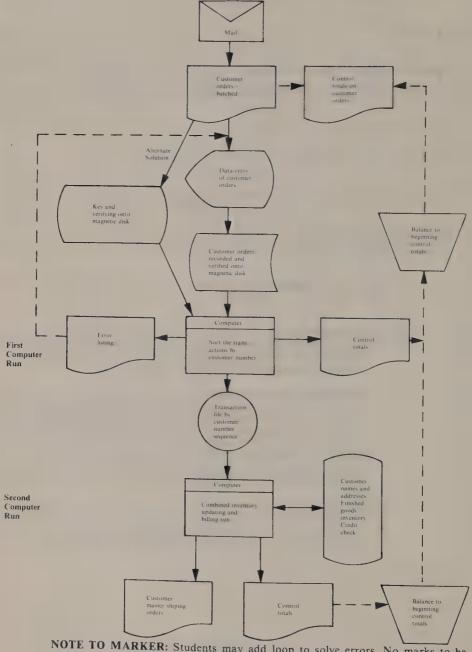
NOTE TO MARKER: (1) mark each for Columns 1-3, Part (a) Column 4 (4) marks, Part (b) Column 4 (5) marks.

- 10 Q.4
  - (6) (a) A computer system is input/output bound if its CPU must wait while its input/output equipment carries out its functions and is process-bound (or CPU-bound) if the input/output devices have to wait while the CPU is involved in computations and other operations.

Overlapped processing was developed to help solve these problems and thereby to increase the throughput of a computer system. "Throughput" can be defined as the total amount of fully completed data processing occurring during a specific period of time. Thus, the efficiency of a computer system is gauged not by the speed of its input, processing, or output equipment, but by its throughput; that is, the amount of data processing completed during a period of time. The modern operating system provides for the supervision and scheduling of the above tasks, and allocates the tasks to the physical equipment, facilitating the data processing.

(4) (b) The time it takes to complete a data processing assignment is called turnaround time. Overlapped processing greatly increases the throughput of most business computer systems and reduces turnaround time because most business applications require large amount of input/output operations.

Q.5 The order processing procedures for the Acme Company - using a system flowchart - is set forth below.



NOTE TO MARKER: Students may add loop to solve errors. No marks to be deducted. 238

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14 Q.6

- (7) (a) Systems analysts and computer programmers, for example, are creative professional personnel whose job responsibilities make it difficult to rely on traditional work rules or traditional performance criteria. Since these personnel often have more professional loyalty than to the job, enjoy innovative, rather than routine work, the criteria ought to be results oriented and require self-discipline.
- (7) (b) One of the most important jobs of the manager of computer services is to recruit qualified personnel and to develop, organize, and direct the capabilities of existing personnel. Employees must be trained to keep up with the latest developments, employee job performance must be continually evaluated, and outstanding performance rewarded. Systems analysts and computer programmers are creative professional personnel who cannot be managed with traditional work rules or evaluated by traditional performance criteria. Therefore, effective project planning, controlling and reporting techniques must be utilized in this regard. A flexible, rewarding, and congenial job environment must be created to retain competent computer professionals.

10 Q.7

- (5) (a) Under department of initial applications A good place to start on initial applications, but as the information systems function expands to other applications, problems may emerge. Common problems include: lack of objectivity in setting priorities; limited vantage point of the organization; and lack of organizational status.
- (5) (b) Independent MIS department probably the best location for a large organization. It reflects the organization-wide scope of information, provides status, and encourages innovation and integration. It resolves objectivity and priority setting problems.

12 O.8

(4) (a) An audit process should review and evaluate: (i) data processing controls, (ii) organizational controls, and (iii) facility controls. For example, (i) input control, (ii) documentation, and (iii) security.

(b)

- (4) i) Auditing around a computer involves verifying the accuracy and propriety of computer input and output without evaluating the computer programs utilized to process the data. This is a simpler and easier method which does not require auditors with EDP or programming experience. However, since this auditing method does not trace a transaction through all of its stages of processing and does not test the accuracy and integrity of the computer program, it should not be the only method used for large volume, sophisticated computer applications.
- (4)

  ii) Auditing through the computer involves verifying the accuracy and integrity of the computer programs that process the data, as well as the input and output of the computer system. Auditing through the computer requires a knowledge of EDP operations and computer programming. Some firms employ special "EDP auditors" for this assignment. Special test data may be used to test processing accuracy and the control procedures built into the computer program. The auditors may develop a special test program or use audit software packages to process the data of the business firm. They then compare the results produced by their audit program with the results generated by the computer users' own programs. One of the objectives of such testing is to detect the presence of unauthorized changes or "patches" to computer programs. Unauthorized program patches may be the cause of "unexplainable" errors or may be utilized by an unscrupulous programmer for fraudulent purposes.

Auditing through the computer may be too costly for some computer applications. Therefore, a combination of both auditing approaches is usually employed.

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**END OF SOLUTIONS** 

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION June, 1985

Marks	Time: 3 Hours

- 12 Q.1 Define the following:
  - (3) (a) Bar Codes
  - (3) (b) Distributed Processing
  - (3) (c) Packet Switching
  - (3) (d) Random Access Memory (RAM)
- Q.2 A number of data processing activities are listed in Column 1, below. For each activity, choose the most appropriate matching system component from Column 2, i.e., determine the *primary* nature of each activity. In your examination booklet, for each item write first the letter from Column 1, then the letter from Column 2, e.g. (s) B.

#### Column 1 Column 2 (a) Recording (b) Retrieving 45 (c) Summarizing A. Input (d) Storing (e) Editing B. Processing (f) Calculating (g) Maintaining C. Storage (h) Converting (i) Sorting D. Output (j) Transmission (k) Comparing

10 Q.3 The table below is an overview of the characteristics of a line and page printer, one type of input/output peripheral.

## Overview of Characteristics: Input/Output Peripherals and Media

Peripheral Equipment	Media	Primary Functions	Typical I/O Speed Range	Major Advantages and/or Disad- vantages
Line & page printer	Paper output	Printer output of paper reports & documents	200- 60,000 lines per minute	Fast, hard copy, but sometimes inconvenient & bulky

## REQUIRED:

(1) Reporting

Using the same format, describe the characteristics of the following:

- (5) (a) Magnetic Ink Character Reader (MICR)
- (5) (b) Optical Character Reader (OCR)

- 13 Q.4 Describe what a Data Base Management System (DBMS) is and list and describe the three major tasks it performs.
- Q.5 To assist marketing management in getting greater control over their sales people, the Acme Company has decided to install a new management information system. Fundamentally, the major data for the MIS consists of a weekly master charge magnetic disk file, which has been previously sorted by customer account number and which provides input for the computerized sales report run. The weekly and year-to-date (YTD) customer sales master disk files are updated, and weekly and year-to-date sales reports by customers are printed (first computer run). The weekly master charge magnetic disk file is then sorted by salesperson number and written on a magnetic disk file (second computer run) which, in turn, provides the necessary input for printing a weekly and year-to-date report by salesperson (third computer run). The totals of the third run are then compared to the weekly and year-to-date sales report by customers.

### REQUIRED:

On the basis of the above information, prepare a system flowchart that depicts the flow of inputs and outputs for the three computer runs. Also, show the balancing of control totals where deemed necessary.

- 12 Q.6 Consider the function of the computer services department.
  - (6) (a) Discuss where the computer services department should be located within a business firm.
  - (6) (b) Should computer services be centralized or decentralized within a business firm?
- Q.7 Microcomputer users are apt to purchase application packages. Discuss five criteria for assessing these packages.
- Q.8 Organizational controls are methods of organizing and performing the functions of the computer services organization that facilitate the accuracy and integrity of computer operations and systems development activities. Your textbook discussed numerous types of organizational controls. Name and briefly discuss *five* of these controls.

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**END OF EXAMINATION** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION June, 1985 EXAMINER'S

### Specific

- Q.1 (a) Bar Codes This question was generally answered quite well.
  - (b) Distributed Processing This question was not too badly answered. Some students confused multitasking and distributed data bases with distributed processing.
  - (c) Packet Switching This question was not answered very well. Many students considered it as a means of data transfer from secondary to primary storage (or vice-versa), which is incorrect.
  - (d) RAM This question was answered very well.
- Q.2 This multiple choice question was generally answered well. The number of correct responses averaged 9 - 10 out of twelve. The most common errors were made on (b) Retrieving, (c) Summarizing, and (d) Converting. No student received less than 6 out of 12.
- Q.3 This question discussing characteristics of MICR and OCR was answered quite poorly. Many of the students confused MICR with microfiche. Some students were not sure whether MICR and OCR were used for input or output.
- Q.4 Database Management System (DBMS): This question was generally answered poorly. The most common error was in not making a distinction between the database and the software required to manage it. The three major tasks in most cases were not clearly identified. The marker had to infer the writers' understanding from long-winded explanations of timely reports, better decisions, access to data, etc. In many cases, the writer would state explicitly that a DBMS is responsible for creation, use and maintenance, and then proceed to identify and explain three totally different concepts as the major tasks of a DBMS. Very few students were able to explain what database creation means.
- Q.5 General problems with the systems flowchart centered around not providing enough detail. There was a tendency for students to have unlabelled symbols or vaguely labelled symbols (e.g., "PROCESS"). This caused the reader to have to infer the contents of the symbols. Most students answered the question effectively and used the correct symbols.

Continued...

- Q.6 Computer services department location: This question was generally very poorly answered; however, there were a few exceptionally good answers. The most common error made was the attempt to answer part (b) in part (a) and then duplicate the answer given in part (a) in part (b).
  - (a) Nearly one third of the responses addressed solely the issue of physical location of the computer equipment and the security precautions required. Statements like "the computer should be centrally accessible but not in the way of traffic flow" were common for part (a). Very few students displayed an understanding of the functional areas within a firm or how the historical use of computer technology impacted on the location issue. Most students realized that the firm size would somehow have something to do with the issue, but few related this to organizational structure.
  - (b) Of the two parts, (b) was answered better than (a). The best responses included issues of centralized; control, security, lack of duplication, sensitivity to system failure, and decentralized: responsiveness to the user, data redundancy, cost, lack of standardization. Most students understood that the firm characteristics would play an important role in resolving the issues, but very few stated that management philosophy would also affect the issues. Nearly 20% of respondents took a position of either centralized or decentralized, and then tried to support it for all cases.
- Q.7 Applications Packages Criteria generally well done. There were numerous combinations of acceptable answers.
- Q.8 A detailed knowledge of the various types of control is very important for accounting students. It was a disappointment to see the relatively poor performance of many students in this question.

Many students confused organizational controls with facilities controls and information processing controls. Some just named the controls without discussing how they ensure accuracy and integrity of computer operations.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## **INFORMATION & COMPUTER SYSTEMS 325 EXAMINATION** June, 1985 SUGGESTED SOLUTIONS

Time: 3 Hours Marks

12 Q.1

- (a) Bar Codes. Vertical marks or bars placed on merchandise, tags, or packaging (3) which can be sensed and read by optical character reading devices. The width and combination of vertical lines are used to represent data.
- (b) Distributed Processing. Also called distributed data processing (DDP). A major (3)form of decentralization of information processing made possible by a network of computers dispersed throughout an organization. Processing of user applications is accomplished by several computers interconnected by a data communication network rather than relying on one large centralized computer facility or on the decentralized operation of several completely independent computers.
- (c) Packet Switching. A data transmission process that transmits addressed packets (3)such that a channel is occupied only for the duration of transmission of the packet.
- (d) Random Access Memory (RAM). One of the basic types of semiconductor (3)memory used for temporary storage of data or programs during processing. Each memory position can be directly sensed (read) or changed (write) in the same length of time, irrespective of its location on the storage medium.
- Matching 0.2 13
  - (a) Recording A
- (f) Calculating B
- (k) Comparing B

- (b) Retrieving D
- (g) Maintaining B/C
- (1) Reporting D

- (c) Summarizing II (d) Storing C
- (h) Converting A (i) Sorting — B
- (e) Editing A/B
- , (j) Transmission A/D

10 Q.3

## Overview of Input/Output Peripherals and Media

		Peripheral Equipment	Media	Primary Functions	Typical I/O Speed Range*	Major Advantages and/or Dis- advantages
(5)	(a)	Magnetic ink character reader (MICR)	MICR paper documents	Direct input of MICR documents	700-3,200 cps 180-2,000 dpm	Fast, high density reading, but documents must be preprinted and the character set is limited
(5)	(b)	Optical character reader (OCR)	Paper documents	Direct input from written or printed documents	100-3,600 cps 180-1,800 dpm	Direct input from paper documents, but limitations on input format

<sup>\*</sup>cps = Characters per second; cpm = characters per minute; dpm = documents per minute.

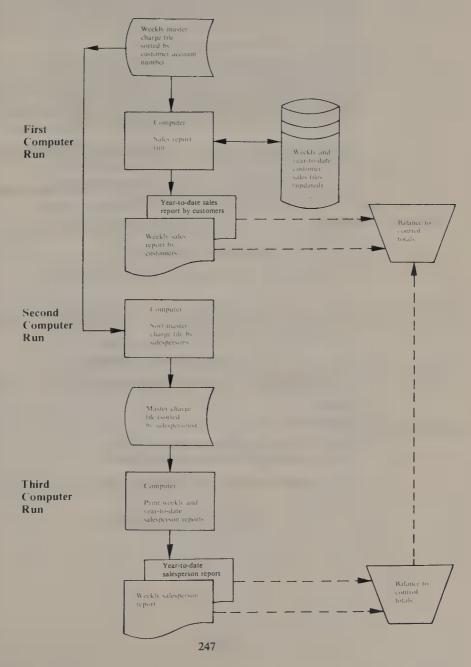
13 Q.4

(4) A data hase management system (DBMS) is a set of computer programs which control the creation, maintenance, and use of the data hases of a computer-using organization. A DBMS is a fourth generation computer software development which is required for the use of integrated collections of data and information known as data bases, which are essential to the efficient and effective use of computers in modern organizations.

A DBMS automatically performs the following tasks:

- (3) Data base creation defining and organizing the content, relationships, and structure of the data needed to build a data base.
- (3) Data base maintenance adding, deleting, updating, correcting, and protecting the data in a data base.
- (3) Data base processing using the data in a data base to support various data processing assignments such as information retrieval and report generation.

Q.5 The salesperson procedures for the Acme Company — using a system flowchart — is set forth below.



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- 12 0.6
  - (6) (a) The organizational location of the computer services department depends on the size of the computer operation, the emphasis given to computer services by top management, the historical development of data processing in the organization, and the amount of centralization or decentralization of data processing within the firm.
  - (6) (b) The development of large computers with centralized data files using remote data communications terminals has supported the centralization of computer services. However, the development of microcomputers, minicomputers, intelligent terminals, data communications, and distributed processing supports decentralization of computer services within an organization. The choice depends on management philosophy, personnel capabilities, and type of operations.
- 10 Q.7 NOTE TO MARKER: Any 5 of the following criteria are acceptable. (2 marks for each.)
  - (a) Level of sophistication of the software relative to information requirements (needs) in terms of applications and expertise.
  - (b) Speed of calculations (response time), time to update files and produce reports.
  - (c) Capacity (files, transaction volumes, word size, etc.).
  - (d) Ease of data entry and operations. Level of user friendliness.
  - (e) Quality of manual. (Accuracy, completeness, understandability, use of examples.)
  - (f) Hardware required, i.e., memory, number and capacity of disks, interface cards, color and graphics, printer(s) etc.
  - (g) Software operating system, languages, compatibility features.
  - (h) Licencing arrangements costs, copies, modification allowed, maintenance.
  - (i) Training and other assistance seminars, demonstrations, vendor strength, (technical and financial).
  - (j) Controls balancing, input editing, error messages, audit trail, file copying and back-up, password controls, software protection.
  - (k) Is the software Canadian? This may make a difference in some cases, e.g. tax practices.
  - (1) Integration of software /hardware (telecommunications).

- 15 Q.8 **NOTE TO MARKER:** Any 5 of the following will generate full marks. (3 marks for each.)
  - (a) Production Control A production control section should monitor the progress of data processing jobs, data preparation activities, and the quality of input/output data.
  - (b) Separation of Duties A basic principle of organizational control in EDP is to assign the duties of systems development, computer operations, and control of data and program files to separate groups. For example, systems analysts and computer programmers are not allowed to operate the computer console or make changes to data or programs being processed. In addition, the responsibility for maintaining a library of data files and program files is assigned to a "librarian" or "data base administrator".
  - (c) Standard Procedures Manuals of standard procedures for systems development, computer programming, and computer operations should be developed and maintained. Following standard procedures promotes uniformity and minimizes the chances of errors and fraud.
  - (d) Documentation System, program, and operations documentation must be developed and kept up-to-date to ensure the correct processing and maintenance of each computer application.
  - (e) Authorization Requirements Requests for systems development, program changes, or computer processing must be subject to a formal process of review before authorization is given.
  - (f) Conversion Scheduling Conversion to new hardware and software, installation of newly developed information systems, and changes to existing programs should be subjected to a formal notification and scheduling procedure to minimize their detrimental effects on the accuracy and integrity of computer services.
  - (g) Auditing of EDP The computer services organization and its EDP activities must undergo periodic examinations or "audits" to determine the accuracy, integrity, and safety of all computer based information systems.

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**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### INCOME TAX 409 EXAMINATION March, 1985

Marks Time: 3 Hours

#### NOTE:

- 1. This examination is based on the *Income Tax Act* as it stood on January 19, 1984 which included the amendments to the Income Tax Regulations. It is imperative that, on the inside cover of your examination booklet, you write down the date and edition on which you based your study for this examination. If you choose not to record your references, the examiner will assume that you have used the *Income Tax Act* as it stood on January 19, 1984.
- 2. Marks will be deducted for answers which mix up different years or editions of the *Act* within the same question (e.g., using 1984 personal exemptions with 1983 tax rates and credits).
- 3. Round all calculations to the nearest dollar.
- 4. The following tables are provided for reference:

	1984	1983
Basic exemption	\$3,960	\$3,770
Additional marital	3,470	3,300
Total	\$7,430	\$7,070
Spouse's income limit	\$ 490	\$ 570
Dependants under 18	710	710
Dependants under 18 — income limit	2,540	2.450
Dependants 18 or over	1,360	1,300
Dependants 18 or over — income limit	2,600	2,570
Taxpayers 65 or over	2,480	2,360
Additional for blind or bedridden	2,480	2,360

Taxable Income	Tax		Taxable Income	L INCOME TAX RAT	ES
\$1,238 or less In excess of	6%		\$1,179 or less	6%	
\$ 1,238	\$ 74 + 16% on next	II 1.238	In excess of \$ 1,179	\$ 71 + 1607	0 1 170
2,476	272 + 17% on next	2,476	2.358	\$ 71 + 16% on next 259 + 17% on next	\$ 1,179
4,952	693 + 18% on next	2,476	4.716		2,358
7,428	1,139 + 19% on next	4,952	7.074	660 + 18% on next	2,358
12,380	2,080 + 20% on next	4,952	11.790	1,085 + 19% on next	4,716
17,332	3,070 + 23% on next	4,952	16,506	1,981 + 20% on next	4,716
22,284	4,209 + 25% on next	4,952	21,222	2,924 + 23% on next	4,716
27,236	5,447 + 25% on next	7,428		4,009 + 25% on next	11,790
34,664	7,304 + 30% on next	24,760	33,012	6,956 + 30% on next	23,580
59,424	14 732 + 34% on semair	.,	56,592	14,030 + 34% on remain	der

5. The investment tax credit rate on qualified property for the Vancouver area is 7%.

- 15 Q.1 For the following unrelated transactions, select the most appropriate answer provided:
  - (5) (a) Sugar Club Ltd., a taxable Canadian corporation, operates a discotheque in Vancouver. It incurred expenditures of \$500,000 during November and December 1983, for improvements to the premises for use as a discotheque. The company has obtained a lease for the premises for a term of 4 years with 2 options for 3 years each. The lease commences January 1, 1984, and the company has a December 31 year-end.

The company incurred an additional expenditure of \$60,000 for leasehold improvements in the same premises in March 1985.

The maximum capital cost allowance that may be claimed by Sugar Club Ltd. on its leasehold improvements for its 1985 taxation year is:

- i) \$ 0
- ii) \$ 40,715.
- iii) \$112,500.
- iv) \$ 76,429.
- v) \$ 5,000.
- (5) (b) Mr. Li is an employee of Delight Imports Ltd. (Delight), a Canadian-controlled private corporation operating an import business in Edmonton. In October 1984, Mr. Li sold the 5,000 shares of Delight which he had acquired when he exercised a stock option on December 24, 1982. The following information relates to his share transaction:
  - option was granted in January 1982 and expired on December 31, 1982;
  - option price was \$3.00 per share;
  - fair market value at the time option was exercised was \$9.00 per share;
  - proceeds of disposition in October 1984 were \$25,000; and
  - Mr. Li dealt at arm's length with Delight at all times.

Mr. Li would have to include in his 1984 income for tax purposes with respect to his disposition of Delight's shares:

- i) \$ 0.
- ii) \$30,000 employment income.
- iii) \$30,000 employment income and \$20,000 capital loss.
- iv) \$20,000 capital loss.
- v) \$30,000 employment income and \$10,000 capital gain.

(5) (c) Mr. Cyr, a long time employee of Johnny Candies Ltd. of Toronto, retired in 1984. He had been employed by the company since 1972 and at the time of his retirement was given an amount of \$50,000 in recognition of his long service.

In 1978, the company established a pension plan for all its employees. Under the terms of the plan, all contributions made by the employer are vested in the employees at the time when the contributions are made. In 1984, Mr. Cyr also received a lump sum of \$150,000 from the pension plan upon retirement.

The maximum amount that Mr. Cyr could transfer in 1984 to a Registered Retirement Savings Plan and deduct from his 1984 income with respect to the money received from the pension plan and the \$50,000 from the company is:

- i) \$ 0.
- ii) \$150,000.
- iii) \$200,000.
- iv) \$195,500.
- v) \$185,000.
- Q.2 Mr. and Mrs. Useful became residents for Canadian income tax purposes in 1972. However, they maintained an apartment in Hong Kong for their regular visits. The apartment is the property of Mrs. Useful only.

In 1972, Mr. Useful purchased a house in Calgary, Alberta where he and his wife settled down and began a new life.

In 1985, Mr. and Mrs. Useful sold both homes and moved to Bermuda for their retirement.

The following information relates to the two homes:

	Hong Kong	Calgary
Year of Acquisition Cost Fair market value (on December 31, 1981) Proceeds of disposition Commission paid on disposition	1972 \$100,000 \$300,000 \$200,000 \$ 20,000	1972 \$250,000 \$400,000 \$350,000 \$ 11,250

All amounts are Canadian dollars.

Mr. Useful designated his house as his principal residence for the years from 1972 to 1984 inclusive. Mrs. Useful designated her apartment as her principal residence only for the maximum number of years allowed by the Act.

#### REQUIRED:

Compute the amounts of capital gains, if any, realized by Mr. and Mrs. Useful with respect to the dispositions of the two properties in 1985. Present your computations in good form.

Q.3 Shell Manufacturing Ltd. (Shell), is a Canadian-controlled private corporation with a December 31 year-end. All of the shares are owned by Mr. Jones, who operates a retail store under a corporate entity, Jones Brothers Ltd., (JB). The shares of JB are owned by Mr. Jones and his brother in the ratio of 60% and 40% respectively. JB also has a December 31 year-end.

The following data relate to Shell and JB for the 1984 taxation year:

### (a) Income Statement of Shell

Sales		\$2,069,000
Less cost of goods sold: Inventory — opening Purchases  Less inventory — closing	\$ 300,000	(650,000)
Door inventory creams		1,419,000
Administration, selling and general expenses:		
Accounting	30,000	
Depreciation and amortization	180,000	
Legal and professional	30,000	
Salaries and wages	350,000	
Commission	150,000	
Rental	120,000	
Utilities	50,000	
Promotion	109,000	(1,019,000)
		400,000
Other income:		
Dividends	30,000	
Gain on disposal of fixed assets	450,000	480,000
Income before income tax		880,000
Less income tax		(420,000)
Net income		\$ 460,000
1,00,1110,1110		

(b) Sales and salaries data of Shell relating to the permanent establishments are as follows:

	Sales	Salaries and Wages
British Columbia Alberta Manitoba Ontario California	\$ 819,000 250,000 300,000 500,000 200,000	\$100,000 40,000 50,000 100,000 60,000
Total	\$2,069,000	\$350,000

Continued . . .

- (c) Shell paid \$30,000 to the 18-year-old son of Mr. Jones which is included in the commission expense. His son did not do any work for the company.
- (d) It has been determined that 9.7% of the company's active business income was derived from the branch in California. The branch paid \$10,000 (Canadian funds) in US income tax.
- (e) The following data relate to the capital cost allowance schedule:

Class	Undepreciated Capital Cost (UCC) January 1, 1984		itions 984	Disposal Proceeds 1984
3	\$ 300,000	\$	0	\$200,000 (i)
6	200,000		0	0
8	270,000	60	000,0	80,000 (ii)
10	70,000	4(	000,0	10,000 (iii)
14	90,000	80	0,000	0 (iv)
29	170,000	60	000,0	0 (v)
	\$1,100,000	\$240	000,0	\$290,000

- 1) This amount represents the proceeds from the sale of a Class 3 building which was the only asset in the class. The capital cost of that asset was \$500,000. The company has also, in the same year, disposed of the subjacent land for proceeds of \$800,000; its adjusted cost base prior to sale was \$500,000.
- ii) This amount represents proceeds of disposition of several items in Class 8. Proceeds for each individual asset were less than the capital cost of that asset.
- iii) This amount represents the proceeds of disposition of one asset in Class 10. The capital cost of the asset disposed of was \$8,000.
- iv) The \$90,000 represents the remaining cost paid by the company for a licence for a special manufacturing process for a period from July 1, 1983, to June 30, 1993.
   The original cost of this license was \$94,736. The \$80,000 was paid for another licence for special processing for a period from September 1, 1984, to August 31, 1990.
- v) The \$170,000 opening balance was carried forward from the 1980 taxation year and there were no additions or disposals between the 1981 and 1983 taxation years.

- (f) \$10,000 tax consultant fees for advice given to Mr. Jones for his personal tax planning were included in the legal and professional expense of Shell.
- (g) Shell made the following donations in 1984 which were included in promotional expenses:

Registered charities	\$60,000
Federal political parties	\$ 9,000

- (h) The dividend income was from the shares of taxable public Canadian corporations in which Shell has shareholdings of less than 1%.
- (i) The following amounts (of Shell) have been determined in accordance with the provisions of the Act:

Cost of manufacturing and processing capital	\$ 900,000
Cost of manufacturing and processing labor .	\$ 200,000
Cost of capital	\$1,300,000
Cost of labor	\$ 350,000

- ( j ) JB has no income for income tax purposes in 1984.
- (k) Shell and JB have the following balances from the 1983 taxation year in respect of the accounts indicated:

Account	Shell	JB
Refundable dividend tax on hand	\$ 45,000	\$ 30,000
Cumulative deduction account	\$780,000	\$100,000
Preferred-earnings amount	\$ 25,000	\$ 10,000
Cumulative eligible capital	\$ 60,000	\$ 0

- (1) Shell paid dividends of \$100,000 to its shareholder in November 1984. A valid Subsection 83(2) election was made on \$40,000 of the total dividends paid.
- (m) The following losses of Shell were carried forward from the 1983 taxation year:

Non-capital losses	\$160,000
Net capital losses	\$200,000

The company would like to utilize the net capital loss first.

#### REQUIRED:

Compute, in good form, the minimum federal income tax payable by Shell Manufacturing Ltd. for its 1984 taxation year.

- Q.4 Mr. Bates is a resident of Alberta and he owns all the shares of Bates Restaurant Supplies Ltd. (BRS). He is employed by BRS as the president of the company. The following information relates to his 1984 income tax:
  - (a) Income from employment from BRS:

Gross salary (January 1, 1984 — December 31, 1984)		\$70,000
Less deductions:		
Income tax	\$15,000	
Canada Pension Plan	338	
Unemployment insurance	508	
Registered pension	3,500	
Interest on company's loan (see note)	2,500	(21,846)
Net salary		\$48,154

#### NOTE:

On January 1, 1984, the company made a loan of \$50,000 to Mr. Bates, in his capacity as a shareholder and officer of the company, for his personal use. The loan is to be repaid in full on December 31, 1987 and interest at 5% per annum must be paid by Mr. Bates annually on December 31. The prescribed interest rates for the four quarters in 1984 were 10%, 10%, 11% and 13%.

(b) Mr. Bates has received the following:

Interest from bank deposits in Calgary	\$20,000
Taxable dividends from public corporations	15,000
Taxable dividends from BRS	_35,000
	\$70,000

Mr. Bates reports interest income on the cash basis.

(c) The results of his capital transactions in 1984 were:

Taxable capital gains	\$25,000
Allowable capital losses	\$10,000
Gains from dispositions of	***,***
listed personal properties	\$ 5.000
Allowable business investment losses	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
(included in the ACL above)	\$ 7,000

(d) In addition, in June 1984, Mr. Bates transferred 2,000 shares of DC Ltd., a taxable public Canadian corporation, to Mrs. Bates as a gift. Mr. Bates has elected not to have Subsection 73(1) apply. The relevant information on the shares is:

Adjusted cost base Fair market value (at transfer)	\$20,000 \$50,000
Taxable dividends received after transfer	\$ 3,000

On December 31, 1984, Mrs. Bates sold the shares for proceeds of \$40,000.

Continued . . .

(e) In March 1984, Mr. Bates transferred 1,000 shares of BRS to each of his sons, Eric (aged 19) and John (aged 13). The following information relates to the shares transferred to the sons:

Adjusted cost base (1,000 shares)	\$10,000
Fair market value (1,000 shares at transfer)	\$70,000
Taxable dividends (for 1,000 shares)	
received after transfer	\$ 3,000

The dividend income was the only income of the children. Mr. Bates has a cumulative small business gains account of \$100,000.

Eric attended 8 months of university in 1984. Mr. Bates paid \$1,500 tuition for Eric in 1984.

(f) In 1984 Mr. Bates paid the following fees in connection with his appeal against a re-assessment of his 1981 income tax returns:

Lawyer	\$10,000
Accountant	6,000
	\$16,000

- (g) Mr. Bates has a farm on which he employs several workers to help him cultivate a flower nursery. The business does not take up a lot of his time; it has some good years and some bad ones. In 1984, Mr. Bates had an income of \$5,500, determined in accordance with the provisions of the Act, from the farming business.
- (h) The following losses were carried forward from prior years:

Restricted farm loss from:	\$ 8,000
1978	4,000
1982	\$12,000
Net capital losses from:	\$65,000
1977	10,000
1983	\$75,000
Non-capital losses from: 1983	<u>\$70,000</u>

Mr. Bates would like to utilize the net capital losses before the non-capital losses.

### REQUIRED:

Compute, in good format, the minimum federal income tax payable by Mr. Bates for the 1984 taxation year.

**END OF EXAMINATION** 

#### CERTIFIED MINIAL ACCOUNTANTS' ASSOCIATION OF CANADA

# INCOME TAX 409 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### General

Students who passed this examination demonstrated the level of competence in Taxation that is expected from professional accountants. Overall, performance was very consistent with that of previous examinations. Some students had a problem with the length of time allowed. It should be noted that, within the longer questions, the awarding of part-marks was weighted in favor of those who provided clear evidence of knowing the course content and the correct approach. Many students would be advised to use their time for each question in proportion to the marks available. Nevertheless, the examiner was impressed by the ability of students to bring a professional approach to the identification and solution of income tax problems and issues of medium difficulty.

#### Specific

- Q.1 (a) Many chose option (iii) incorrectly. Too many students did not know the number of periods to be amortized, or that the half-year rule is applicable to Class 13 assets.
  - (b) Quite a few overlooked the \$30,000 employment income and included it incorrectly in 1982 instead of in the year of disposition.
  - (c) Students had problems computing the amount that may be transferred to a RRSP with respect to the retiring allowance, in accordance with the provisions of Paragraph 60(j.1).

Two general comments on multiple-choice questions:

- Quite a few refused to make a clear choice of answer.
- Many wasted too much time in writing out everything relating to the answer when only a choice was required. Students do not recognize that part marks are not given for multiple choice questions, and that showing elaborate working may be a waste of their time.
- Q.2 This question was poorly done although its framework was similar to an assignment problem. The question asked for presentation of computations in good form, but many did not comply because they had little time left.
  - The issue of two principal residences acquired prior to 1982 within a family unit is not an unusual situation, but many did not know how to approach it.

Continued ...

- Some students did not know that personal use property cannot have capital loss. Some did not know that a principal residence can be outside of Canada. Others did not know the different tax treatments under Subsections 40(2) and 40(6).
- Q.3 Time was a factor because of the comprehensive nature of the question. However, this type of question was included in prior exams and also in the assignments. Approach and format are, therefore, critical. Some students answered this question almost twice because most of the answer was provided in pencil and re-copied in ink; students waste valuable examination time this way.

  Many students did not indicate that the two corporations were

Many students did not indicate that the two corporations were associated. The reconciliation to income for tax purpose was generally well done but taxable capital gain and cumulative eligible capital were often not properly computed.

The capital cost allowance was well handled, with the exception, in some cases, of the application of Subsection 13(21.1) with respect to the denial of terminal loss; the capital gain on Class 10; or computation of CCA for Class 29.

The analysis of income was widely ignored, but many recognized the need to compute the manufacturing profit. Some did not know the limitation of the amount of net capital loss that can be used in computing taxable income.

Many students wasted a lot of time in computing the taxable income allocated to provinces of Canada for purpose of federal tax abatement; however, one of the quickest and correct methods, especially for this question, is to compute the taxable income attributable to California, the balance being the taxable income attributable to provinces of Canada; full marks were awarded for correct method used.

Generally, the foreign business tax credit was incorrectly computed but partial marks were awarded.

Small business deduction was computed without the consideration of the balance of the total business limit (still applicable to 1984 taxation year); that is, there is a limitation of \$120,000.

Many did not observe the maximum of \$500 for the federal political tax credit.

There were no major problems relating to the Parts II and IV tax and dividend refund.

In summary, most students had no problem dealing with this comprehensive question, while for some it proved to be insurmountable. The objective of this type of question is to provide a real-life simulation of a corporate entity.

Continued...

Q.4 This question was well handled by most students, perhaps because this is one of the main areas emphasized in the course. Part marks were awarded for incomplete answers.

The \$50,000 loan received from the company should be included as income with no deemed interest; however, almost all students computed and included in income the deemed interest benefit (probably because of the prescribed rates included in the question). Full marks were given for both answers.

There is still a misconception among students that taxable dividends denote dividends that have been grossed up. In fact, taxable dividends are actual amount received with no gross up: if the recipient is an individual, other than a trust that is a registered charity, then a gross-up amount is necessary.

The election under Subsection 73(1) proved to be too difficult for many. Time did not seem to be a factor here, for attempts were made, but with incorrect answers.

In addition, the concept of cumulative small business gains account was not understood by students. Quite a few did not know the difference between gains from LPP and taxable net gains from LPP. Some did not know that the \$6,000 accounting fee paid with respect to tax appeal is deductible.

There was some problem in determining the amount of restricted farm loss that is available in computing taxable income; the 1978 restricted farm loss expired in 1984.

There was some confusion with respect to the percentage used in computing the dividend tax credit. Many omitted the deduction for income tax withheld.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

#### INCOME TAX 409 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks	т	ime 3 Hours
15	Q.1 (5) (a) The answer is (iv) \$76,429.  - The expenditures are capital costs of Class 13.  - The 1983 expenditures are deemed to be incurred in 1984, the yleasehold interest was acquired. (Subsection 3(b) of Schedule III of The number of 12-months period is 7, 4 years plus 1 option period However the number of periods used for the 1985 expenditures of \$1.00 + 4.0	Regulation.) d of 3 years. 660,000 is 6.
	1984 expenditure: \$500,000/7 =	\$71,429
	1985 expenditure: \$60,000/6 = \$10,000	
	\$10,000 × 50% (Regulation 1100(1)(b)(i)) Total	5,000 \$76,429
	-Incorrect answers:	
	ii) (\$71,429 + \$10,000) × 50%	\$ 40,715
	iii) (\$500,000 × 1/5) (\$ 60,000 × 1/5) \$100,000 12,500	\$112,500
	v) (\$ 60,000 × 1/6) × 50%	\$ 5,000
	<ul> <li>(5) (b) The answer is (iii) \$30,000 employment income and \$20,000 capit.</li> <li>Subsection 7(1.1) is not applicable because the shares were sold with the date he acquired them.</li> <li>Computation of effects:</li> </ul>	at loss. vithin 2 years
	Employment benefit:	
	FMV (option exercised): 5,000 × \$9 Less option cost: 5,000 × \$3	\$ 45,000 (15,000) \$ 30,000

The benefit is to be included in 1984 income, year of disposition. (Subsection 7(1.2)

Capital gain/loss on disposition:

Proceeds	\$25,000
----------	----------

Less adjusted cost base:

Actual cost \$15,000 Add adjustment (Paragraph 53 (1) (j)) 30,000 (45,000)Capital loss \$20,000

#### -Incorrect answers:

ii) Did not compute capital loss.

- iv) Considered the employment benefit as income of 1982, the year when the option was exercised.
- v) Did not adjust the cost base by the amount of employment benefit resulting in a capital gain of \$10,000 (\$25,000 - \$15,000).
- (5) (c) The answer is (v) \$185,000.

-The \$50,000 is considered to be retiring allowance. (Subsection 248 (1))

- Both the amounts of \$50,000 and \$150,000 are required to be included as income under Subparagraphs 56(1)(a)(ii) and (i) respectively.

  -They can be transferred to an RRSP under Paragraphs 60(j) and (j.1) and

deducte	ed from his income as follows:	raphs ou(j)	and (J.I) an
Pen	nsion benefit		\$150,000
Ma - \$2	iring allowance: ximum of 2,000 × 13 1,500 × (13 - 7) Total	\$26,000	35,000 \$185,000
- Incorre	ct answers:		
ii) Tra	nsfer of pension benefit only		\$150,000
iii) Tra and	nsfer of the full amounts of pension benefit retiring allowance: (\$150,000 + \$50,000)		\$200,000
iv) Incereti	orrect computation of eligible transfer of ring allowance:		
	\$150,000 + (\$3,500 × 13)		\$195,500

## 15 Q.2 Capital gains realized by Mr. and Mrs. Useful in 1985:

-Paragraph 40(2)(b) and Subsection 40(6) are applicable.

- Mr. Useful designates his house as principal residence for 1972 to 1984 (13 years). Mrs. Useful can only designate her apartment as her principal residence for the period from 1972 to 1981 and 1985 (10 + 1 = 11 years)

- Computation of capital gains:

			Mr. Useful		Mrs. Useful
	Years designated		13 years		11 years
	Lesser of - Paragraph 40 (2)(b): Actual proceeds		\$350,000		\$200,000
	ACB Commission	\$250,000 11,250	(261,250)	\$100,000 20,000	(120,000)
	Capital gain		88,750		80,000
	Less exemption: \$88,750 × 14/14 \$80,000 × 12/14		(88,750)		(68,571)
(5)	Capital gains		\$ 0		\$ 11,429
	- Subsection 40(6):				
	Pre-1982 gains 40(6)(a):				
	FMV-December 31, 1981 ACB	\$400,000 (250,000)	\$150,000	\$300,000 (100,000)	\$200,000
	Less exemption:				
(2)	\$150,000 × 10/10 \$200,000 × 10/10		(150,000)		(200,000)

Add 40(6)(t	)	
-------------	---	--

Actu	al Proceeds	350,000		200,000	
	AV-December 31, 19 mmission	(400,000) (11,250)	0	(300,000) (20,000)	0
Less	exemption:				
	× 3/4 × 1/4		(0)		(0)
S.,,	btotal				
Su	ototai		0		0
Less	40(6)(c):				
FMV	: December 31, 1981	400,000		300,000	
	al proceeds pital gains	_(350,000)	<u>(50,000)</u> <u>\$ 0</u>	(200,000)	(100,000) \$ 0

(3) Since the capital gain determined under Paragraph 40(2)(b) cannot exceed the capital gain determined under Subsection 40(6), the capital gain realized by the Useful family is nil.

40 Q.3

(5)

(2) Shell and JB are associated by virtue of Paragraph 256(1)(b) as Mr. Jones controlled the two corporations.

Since both corporations are Canadian-controlled private corporations, they must share the annual business limit and the total business limit.

Shell's income for tax purposes for its 1984 taxation year:

Net ir	acome per financial statements		\$ 460,000
Add:			
	Income tax Promotion expense (registered and political	\$420,000	
	donations)	69,000	
	Commission expense (payment to son is not deductible as it was not for business)	30.000	
	Legal expense (tax consultant fees on	30,000	
	personal matter)	10,000	
	Depreciation and amortization	180,000	
	Taxable capital gains on land and Class 10	101,000	810,000

\$1,270,000

w				
и	0	0	0	

(10)

(10)

Gain on disposar of fixed assets	\$450,000	
Inventory allowance (3% × \$300,000)	9,000	
Capital cost allowance	294,718	
Cumulative eligible capital:		
(\$60,000 × 10%)	6,000	(759,718)
Income for tax purposes		\$510,282

#### Capital Cost Allowance Schedule

Class	Ja	UCC anuary 1, 1984	Addition	Disposal	Balance	Rate	CCA(*)
3	\$	300,000	\$ 0	(\$300,000)	. 0 (	a) 5%	\$ 0
6		200,000	0	0	\$200,000	10%	20,000
8		270,000	60,000	(80,000)	250,000	20%	50,000
10		70,000	40,000	(8,000)	102,000	30%	25,800 (b)
14		90,000	80,000	0	170,000	_	13,918 (c)
29		170,000	60,000	0	230,000	_	185,000 (d)
	\$1	,100,000	\$240,000	(\$388,000)	\$952,000		\$294,718

#### NOTES:

- (a) By virtue of Subsection 13(21.1), terminal loss of \$100,000 is not allowed. The amount of capital gain on sale of land is reduced by \$100,000. Therefore, proceeds for building is deemed to be \$300,000.
- (b)  $[\$70,000 + 1/2 (\$40,000 \$8,000)] \times 30\% = \$25,800.$
- (c) Period of licence is 120 months with 6 months expired in 1983. Therefore, the original cost must be \$94,736 (use algebra to determine). The CCA for 1984 is \$9,474 (\$94,736 \times 12/120).

The CCA for the other licence is  $$4,444 ($80,000 \times 4/72)$ .

Total CCA is \$13,918 (\$9,474 + \$4,444).

(d)  $$170,000 + (25\% \times $60,000) = $185,000$ .

Taxable capital gains realized on disposition of fixed assets:

	Proceeds	ACB	Capital Gains
Land	\$700,000	(\$500,000)	\$200,000
Class 10 Total	10,000 \$710,000	(8,000) \$508,000	2,000 \$202,000
Taxable capital gain: \$202,000 × 1/2  Analysis of Shell's income:			\$101,000
Active business income: Canadian California (379,282 × 9.7%)		\$342,492 36,790	\$379,282
Canadian investment income (TCG) Taxable dividends Total			101,000 30,000 \$510,282

Canadian active business is broken into the following:

Manufacturing profits:

$$MP = \frac{MC \$900,000 + ML \$200,000}{C \$1,300,000 + L \$350,000} \times \$342,492$$

= \$228,328

Computation of taxable income of Shell:

	Income for tax purposes		\$510,282
	Deduct:		
(4)	Charitable donation Net capital losses Non-capital losses Taxable dividends Taxable income	\$ 60,000 101,000 160,000 30,000	(351,000)
	Taxable fileoffie		\$159,282

#### Allocation of Taxable Income

	Permanent Establishment	Gross Revenue	%(1)	Salaries	%(2)	Average %	T.I.	T.I.
	B.C.	819,000	39.6	100,000	28.6	34.1	159,282	54,315
	Alberta	250,000	12.1	40,000	11.4	11.8	159,282	18,795
	Manitoba	300,000	14.5	50,000	14.3	14.4	159,282	22,937
	Ontario	500,000	24.1	100,000	28.6	26.3	159,282	41,891
(3)		1,869,000	90.3	290,000	82.9	86.6		137,938
	California	200,000	9.7	60,000	17.1	13.4	159,282	21,344
		2,069,000	100	350,000	100	100		159,282

NOTE: Allocation of taxable income for the provinces is given for information purposes only and is not necessary to the solution.

Foreign business tax credit (U.S.):

Lesser of:

ii) Foreign income tax paid (\$10,000)
(2) whichever is less (7,107)

Small business deduction:

21% of least of:

(2)

- i) Canadian active business income of \$342,492.
- ii) Taxable income  $(2 \times \text{foreign tax credit})$ : \$159,282 -  $(2 \times \$7,107) = \$145,068$
- iii) Annual business limit:

\$200,000 (all allocated to Shell)

iv) Total business limit:

(CDA: Shell-\$780,000; JB-\$100,000)

(all allocated to Shell)

\$1,000,000 - 780,000 - \$100,000:

\$120,000

21% = \$120,000

(25,200) \$27,169

Continued . . .

	Manufacturing profits deduction: Canadian manufacturing			\$ 27,169
	and processing profits  Deduct Amount used for	\$228,328		
	Small Business Deduction	(120,000)	\$108,328	
	Taxable Income		\$159,282	
	Deduct: i) Amount used to calculate Small Business Deduction ii) Canadian Investment Income \$101,000 Less: Net Capital losses (101,000) iii) Amount deducted under Subsection 126(2) × 2  5% of the lesser of \$228,328 and \$120,000 Add 6% of the lesser of \$108,328 and \$25,068	120,000 0 14,214	(134,214) \$ 25,068 \$ 6,000 1,504	
	Manufacturing and Processing Profits Deduct	ion	\$ 7,504	
	*Include only income from an active business	carried on	in Canada	
(2)				(7,504)
(1)	Federal political contribution tax credit:  Maximum  Part I tax		-	(500)
(1)	No refundable portion of Part I tax as the Canad by the net capital losses carried forward.	ian investm	ent income w	as offset
	Part II tax:			
	Lesser of:			
(2)	i) 12.5% × (\$100,000 - \$40,000) = \$7,500 and		=	\$ 7,500
	ii) 1/9 × [\$25,000 + (3/4 × \$120,000)] = \$1	2,778		
(1)	Part IV tax: 1/4 × \$30,000		:	\$ 7,500
	RDTOH: Opening Add Part IV tax			\$45,000 7,500 \$52,500
	Dividend refund:			
(1)	Lesser of: i) 1/4 × \$60,000 = \$15,000 and ii) RDTOH = \$52,500		:	\$15,000

Summary:	
Part I tax	\$19,165
Part II tax	7,500
Part IV tax	7,500
	34,165
Dividend refund	_(15,000)
Total	\$19,165

**NOTE:** There are 6 marks over to provide for the comprehensive question but the maximum is 40 marks.

#### 30 Q.4 Income and taxable income of Mr. Bates for his 1984 taxation year.

Income from employment (BRS):

	Gross salary	·	\$70,000	
	Add loan from BRS: \$50,000 × 10% × 1/2	\$2,500		
	\$50,000 × 11% × 1/4 \$50,000 × 13% × 1/4	1,375 1,625		
		5,500		
(1)	Less repayment: \$50,000 × 5%	(2,500)	3,000	
			73,000	
	Less deductions:			
	Employment expense Canada Pension Plan Unemployment insurance	500 338 508		
(1)	Registered pension	3,500	(4,846)	\$ 68,154

NOTE: Because a major shareholder should not have UIC deducted, an amended T-4 would probably be filed. The amount of UIC deductions would be decreased by \$508, and tax deductions would be increased by \$508. Total payroll deductions would remain the same. (In the marking, credit was given for either solution.)

	Income from properties:	
(1)	Bank interest	20,000
(1)	Taxable dividends: (\$15,000 + \$7,500)	22,500
(1)	Taxable dividends (BRS): (\$35,000 + \$17,500)	52,500
(2)	Taxable dividends: Mrs. Bates:	
	\$3,000 + \$1,500	4,500

Continued . . .

(1)	Taxable dividends: John:			
	\$3,000 + \$1,500		4,500	104,000
(1)	Income from farming business			5,500
(1)	Capital transactions:		25,000	111,034
(1)	TCG (Shares transferred to wife):			
(2)	(\$50,000 - \$20,000) × 1/2 TCG (Shares of BRS) [(\$140,000 - \$100,000) - \$20,000]		15,000	
	× 1/2 (CSBGA) Subsection 73(5)		10,000	
(1)	Gains from LPP	\$ 5,000	50,000	
	TNG: 1/2 × \$5,000		2,500	
(1)	ACL ACL Mrs. Bates:	10,000	52,500	
(1)	(\$40,000 - \$50,000) × 1/2	5,000		
	ABIL	15,000 (7,000)	(8,000)	44,500
				222,154
	Subdivision (e) deductions:			
(1)	Professional fees on appeal			_(16,000)
(1)	ABIL			206,154 (7,000)
	Income			199,154
	Division C deductions:			
(2)	Personal exemptions:			
	Self Wife	3,960 3,470		
	Eric (54.500, 51.500, 52.50			
	[\$1,360 - (\$4,500 - \$1,500 - \$2,600 John	0)] 960 710	(0.100)	
(4)			(9,100)	
(1)	Investment income deduction Education deduction (\$50 × 8)		(1,000) (400)	
(1) (2)	Losses carried over: Restricted farm loss (1978 loss ex	pired)	(4,000)	
	Net capital losses: (\$44,500 + \$2,000)		(46,500)	
(1)	Non-capital losses		<u>(70,000)</u>	(131,000)
	Taxable income			\$ 68,154

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Tax computation:

	\$68,154	
	_(59,424)	\$ 14,732
	\$ 8,730 × 34%	2,968
(1)	<del></del>	17,700
	Dividend tax credit:	
(2)	\$28,000 × 68%	<u>(19,040)</u> *
(1)	Less income tax withheld by payroll	(15,000)
	Federal income tax refund	\$15,000

<sup>\*</sup>An alternate approach is to reduce the amount of the non-capital losses in computing taxable income so that federal tax payable would be fully offset by dividend tax credit of \$19,040. (Both approaches would receive full marks for purposes of this exam.)

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END OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# INCOME TAX 409 EXAMINATION June, 1985

Marks Time: 3 Hours

#### NOTE:

- 1. This examination is based on the *Income Tax Act* as it stood on January 19, 1984 which included the amendments to the Income Tax Regulations. It is imperative that, on the inside cover of your examination booklet, you write down the date and edition on which you based your study for this examination. If you choose not to record your references, the examiner will assume that you have used the *Income Tax Act* as it stood on January 19, 1984.
- 2. Marks will be deducted for answers which mix up different years or editions of the *Act* within the same question (e.g., using 1984 personal exemptions with 1983 tax rates and credits).
- 3. Round all calculations to the nearest dollar.
- 4. The following tables are provided for reference:

	1984	1983
Basic exemption	\$3,960	\$3,770
Additional marital	3,470	_3,300
Total	\$7,430	\$7,070
Spouse's income limit	\$ 490	\$ 570
Dependants under 18	710	710
Dependants under 18 — income limit	2,540	2,450
Dependants 18 or over	1,360	1,300
Dependants 18 or over — income limit	2,600	2,570
Taxpayers 65 or over	2,480	2,360
Additional for blind or bedridden	2,480	2,360

# 1984 FEDERAL INCOME TAX RATES 1983 FEDERAL INCOME TAX RATES

Taxable Income	- Pri		1765 FEDERAL INCOME TAX RATES		LES
	Tax		Taxable Income	Tax	
\$1,238 or less	6%		\$1,179 or less	6%	
In excess of			In excess of	0%	
\$ 1,238	\$ 74 + 16% on next	\$ 1,238			
2,476	272 + 17% on next		\$ 1,179	\$ 71 + 16% on next	\$ 1,179
4,952		2,476	2,358	259 + 17% on next	2,358
7,428	693 + 18% on next	2,476	4,716	660 + 18% on next	2,358
	1,139 + 19% on next	4,952	7.074	1,085 + 19% on next	4,716
12,380	2,080 + 20% on next	4,952	11,790	1,981 + 20% on next	
17,332	3,070 + 23% on next	4,952			4,716
22,284	4,209 + 25% on next	1	16,506	2,924 + 23% on next	4,716
27,236		4,952	21,222	4,009 + 25% on next	11,790
34,664	5,447 + 25% on next	7,428	33,012	6,956 + 30% on next	23,580
	7,304 + 30% on next	24,760	56,592	14,030 + 34% on remai	
59,424	14,732 + 34% on remain	nder		14,050 . 54% on remai	nder

5. The investment tax credit rate on qualified property for the Vancouver area is 7%.

- 15 Q.1 For the following unrelated transactions, select the most appropriate answer provided:
  - (5) (a) Kwik Ltd. is a manufacturer of machine parts operating in Vancouver, B.C. Its first taxation year commenced on January 1, 1983, and ended on December 31, 1983. On February 1, 1983, the company acquired some used equipment costing \$700,000 for manufacturing purposes. On December 1, 1983, the company disposed of manufacturing equipment costing \$50,000 for proceeds of \$30,000. No capital cost allowance was claimed for the 1983 taxation year. On March 1, 1984, the company acquired new manufacturing equipment at a cost of \$300,000. The company can utilize all the investment tax credit in 1984.

The maximum capital cost allowance (CCA) and investment tax credit (ITC) which can be claimed for the 1984 taxation year are:

- i) CCA of \$600,000 and ITC of \$ 0.
- ii) CCA of \$577,500 and ITC of \$21,000.
- iii) CCA of \$573,750 and ITC of \$15,000.
- iv) CCA of \$572,250 and ITC of \$21,000.
- v) CCA of \$404,750 and ITC of \$21,000.
- (5) (b) In November 1984, Mrs. Jack disposed of 5,000 shares of a Canadian public corporation for gross proceeds of \$35,000 less a selling commission of \$800. These shares were gifted to her by Mr. Jack in June 1981, prior to their marriage in January 1982. The following information relates to the 5,000 shares:
  - June 1978 Acquired by Mr. Jack for a cost of \$10,000.
  - June 1981 Fair market value of shares transferred was \$15,000.

Mr. and Mrs. Jack are Canadian residents.

Mr. Jack must include in his income in 1984 a taxable capital gain of:

- i) \$12,100.
- ii) \$10,000.
- iii) \$ 9,600.
- iv) \$ 2,500.
- v) \$ 0.

(5) (c) Sugar Ltd. operates a chain of coffee shops in Ontario. The taxation year of the company ends December 31.

In 1984, the company bought additional coffee shops and, in addition to payment for other assets, paid goodwill as follows:

Location	Goodwill Paid
Metro Toronto	\$ 60,000
London, Ontario	25,000
Windsor, Ontario	35,000
Orillia, Ontario	10,000
	\$130,000

In addition, the company sold two shops and received for goodwill the following amounts in addition to receipts for other assets sold:

Location	Goodwill			
	Original Acquisition Cost	Sale Proceeds		
Thunder Bay, Ontario Waterloo, Ontario	\$30,000 10,000 \$40,000	\$20,000 30,000 \$50,000		

Assuming the opening balance of the cumulative eligible capital in 1984 is \$0, the maximum deduction from income by Sugar Ltd. in the 1984 taxation year with respect to goodwill is:

- i) \$ 0.
- ii) \$4,000.
- iii) \$5,000.
- iv) \$9,000.
- v) \$8,000.

15 Q.2 Bull Ltd., a Canadian-controlled private corporation with a January 31 year-end, has claimed a small business deduction (SBD) of 21% on the amounts indicated for the following taxation years:

Taxation	Year	Amount	om	which	500	wax	claim
1981				\$ 80,	000		
1982				70,	000		
1983				100,	000		
1984				90,	000		
1985				120,	000		

The following dividends were paid by the company:

Taxation Year	Amount
1981	\$ 20,000
1982	30,000
1983	90,000
1984	130,000 (Note)
1985	120,000

NOTE: \$10,000 of this amount was paid when the company made a valid election under Subsection 83(2) of the Income Tax Act.

#### REQUIRED:

Compute the Part II tax payable for the applicable taxation years with respect to dividends paid by Bull Ltd.

ed

20 Q.3

(12) (a) Michael Doe (Michael), John Doe (John), Eric Doe (Eric), and Ken Orr (Ken) are all residents for Canadian income tax purposes. Michael and John are brothers, Eric is the son of John, and Ken is a friend.

M Ltd., O Ltd., X Ltd., and Y Ltd. are Canadian corporations, with shareholders as shown in the following table:

Corporation	Shareholders
M Ltd.	Michael with 100% voting shares
O Ltd.	M Ltd. with 100% voting shares
X Ltd.	John with 40% voting shares
	Eric with 20% voting shares
	Ken with 40% voting shares
Y Ltd.	X Ltd. with 95% voting shares
	X Ltd. with 80% preferred shares
	M Ltd. with 5% voting shares
	M Ltd. with 20% preferred shares

#### REQUIRED:

Determine whether or not the above corporations are associated for purposes of Part I tax. Support your answer by reasons and statutory references.

(8) (b) D Ltd. and C Ltd. are Canadian-controlled private corporations deriving all of their income from Canada. All of the shares of the two corporations are owned by Mr. King, who is a Canadian resident for tax purposes. The following information relates to the taxation year ended November 30, 1984.

	D Ltd.	C Ltd.
Income:		
Active business income	\$120,000	\$ 40,000
Taxable dividends received	30,000	5,000
Taxable capital gains	_ 10,000	5,000
Total	\$160,000	\$ 50,000

Cumulative deduction account at the end of the 1983 taxation year:

Balance	\$890,000	\$ 30,000

#### REQUIRED:

Comment on the maximum small business deduction, if any, that may be claimed by D Ltd. and C Ltd.  $\,$ 

50 Q.4 John Bell (Bell), a long-time resident of British Columbia was employed from 1975 to 1984 by Vancouver Wheel Ltd. (Wheel), a private corporation owned by Mr. Wheel, who is also a long-time resident of B.C. Wheel has always dealt at arm's length with Bell.

On March 15, 1984, Bell's employment with Wheel was terminated by the Company because of his prospective employment discussion with Nuts Ltd. (Nuts), a competitor of Wheel. In settlement of this termination, Wheel paid Bell a lump sum of \$75,000 on March 30, 1984.

Bell's 1984 employment income from Wheel was as follows:

Salary (January 1, 1984-March 15, 19	984)	\$11,250
Less:		
Canada Pension Plan	\$ 234	
Unemployment insurance	. 259	
Income tax	4,734	(5,227)
Net salary		\$ 6,023

On March 15, 1984, Bell sold to Mr. Wheel for proceeds equal to market value of \$20 per share, his 10,000 non-voting shares of Wheel, which had been acquired under the employees' stock option plan in previous years. The following data relate to the acquisition of these shares:

Date Share Options Were Exercised	Number of Shares	Option Price Per Share	Fair Market Value Per Share
April 15, 1979	1,000	\$2.00	\$ 4.00
April 15, 1980	2,000	\$5.00	\$ 6.00
April 15, 1981	2,000	\$6.00	\$ 8.00
April 15, 1982	2,000	\$8.00	\$ 9.00
April 15, 1983	3,000	\$9.00	\$13.00

Wheel did not have a registered pension plan for its employees.

On March 20, 1984, Bell received \$10,000 from Nuts as a bonus, pursuant to an agreement to accept employment with Nuts starting May 1, 1984. Bell worked for Nuts from May 1, 1984, until August 15, 1984, when he resigned. His income from employment at Nuts was:

Salary (May 1, 1984-August 15,	1984)	\$27,000
Less:		
Canada Pension Plan	\$ 104	
Unemployment insurance	249	
Income tax	9,228	
Registered pension plan	1,200	(10,781)
Net salary		\$16,219
•		Continued
		Page 6 of 9

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Nuts paid \$700 for Bell's coverage in the provincial health insurance plan in 1984.

On September 1, 1984, Bell incorporated a limited company, Lights Ltd. (Light), in Vancouver, B.C. to carry out a business of manufacturing light bulbs for wholesale distribution across Canada. Bell invested \$800,000 in Light, \$300,000 from his winning of a lottery and the balance from a 5-year loan to Bell by a bank at an interest rate of 12% per annum. Bell received the following from Light:

- 7,000 common shares with no par value (paid-up capital is \$100 per share);
- 100,000 redeemable preferred shares with a par value of \$1 per share (paid-up capital is \$1 per share).

The first taxation year commenced on September 1, 1984, and ended on December 31, 1984.

The Income Statement for the first fiscal year is as follows:

Sales		\$550,000
Cost of sales:		, = = = , = = =
Inventory - opening	\$ 0	
Cost of goods manufactured	300,000	
	300,000	
Inventory - closing	(50,000)	(250,000)
-	_(30,000)	(230,000)
Gross profit		300,000
Expenses:		300,000
Advertising and promotion	40,000	
Professional fees	4,000	
Commissions	30,000	
Salaries, wages and benefits	90,000	
Depreciation	19,000	
Rentals	5,000	
Utilities		
Interest and bank charges	30,000	
Office and all charges	2,000	
Office and supplies	4,000	
Travel	15,000	
Insurance and property tax	16,000	255,000
Income before income taxes		45,000
Income tax		(8,000)
Net income		
		\$ 37,000

Additional information on the Income Statement for tax purposes:

(a) Insurance premium of \$8,000 was paid for a \$500,000 life insurance policy on Bell's life, the policy being required by the bank. This premium was included in the insurance and property tax expense.

Continued...
Page 7 of 9

- (b) Included in travel was \$3,000 related to the expenses incurred by Mrs. Bell, who accompanied Bell to Europe on a business trip. Mrs. Bell went along only to visit her mother.
- (c) The maximum capital cost allowance available to the company for all assets which includes classes 3, 8, 10 and 29, is \$50,000 for a full taxation year.
- (d) Included in salaries, wages and benefits, was a bonus of \$10,000 which was accrued but has not yet been paid in the 1984 taxation year.
- (e) Incorporation fees of \$1,000 were included in professional fees.
- (f) \$5,000 advertising expense related to a series of television commercials broadcast by a United States! TV station and directed primarily to the Canadian market.

On December 15, 1984, Light paid \$10,000 dividends to Bell and redeemed 50,000 preferred shares for \$60,000.

The following data relate to Bell's other activities in 1984:

(a) He disposed of his only rental building at fair market value on June 30. Details of the sale are:

	Land	Building
Proceeds	\$600,000	\$100,000
Adjusted cost base Class	\$200,000 N/A	\$200,000 3
Undepreciated capital cost (immediately before sale)	N/A	\$130,000

There are no more assets in class 3. Rental income and expenses prior to the sale are:

Income		\$30,000
Expenses:		
Mortgage interest	\$27,000	
Property tax	8,000	
Repairs and maintenance	5,000	(40,000)
Rental loss		\$10,000

(b) Bell has maintained a "hobby" farm for some time. The tax department has applied the provisions of Section 31 of the Act in prior years. The farming income for 1984, determined in accordance with the provisions of the Income Tax Act, was \$4,000.

Continued...
Page 8 of 9

- (c) Bell had the following capital transactions in 1984:
  - i) Disposed of one rare stamp for a fair market value of \$7,000. This stamp was acquired by Bell in 1969 for \$800, and he turned down an offer of \$2,000 for the stamp from a collector at the end of 1971.
  - ii) Disposed of his entire holdings of 20% of the common shares of a Canadian-controlled private corporation to a family friend at a fair market value of \$20,000. A total of 80% of the common shares are owned by his sister. Bell acquired these shares 5 years ago at a cost of \$95,000. His sister's company has never made a profit for tax purposes.
- (d) In January 1985, Bell bought \$45,000 of RRSP's for the maximum deduction from 1984 income.

The following losses were carried forward from the years indicated:

Year Incurred	Loss	Amount of Loss
1980	Listed personal-property loss	\$ 3,000
1974	Restricted farm loss	\$ 7,000
1983	Restricted farm loss	\$ 3,000
1973	Net capital loss	\$300,000
1983	Non-capital loss	\$ 30,000

Bell did not want to apply the non-capital loss in computing his 1984 taxable income.

Mrs. Bell had no income in 1984. Both Mr. and Mrs. Bell were 56 years old in 1984.

#### REQUIRED:

- (20) (a) Compute, in good format, the minimum federal income tax payable by Lights Ltd. for the 1984 taxation year.
- (30) (b) Compute, in good format, the minimum federal income tax payable by John Bell for his 1984 taxation year.

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END OF EXAMINATION

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# INCOME TAX 409 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General.

The June 1985 students performed better than the similar group on the June 1984 examination.

The multiple choice question (Q.1) was poorly done. The purpose of this type of question is to encourage students to develop the skill of developing **perfect** solutions to some specific, but less complex tax problems.

With the exception of question one, the major parts of every question were well handled. The approach used by most students to solving comprehensive problems within the examination environment, was that expected of prospective professional accountants.

#### Specific

Q.1 The poor results on this question may be attributed to the number of variables built into each question. In addition, the topics covered were more difficult than those examined in prior exams.

Some students calculated the correct answers but did not indicate the choice as provided in the question.

- (a) Quite a few chose (ii) because they considered the CCA claim to be \$577,500. The reduction of ITC from the 1984 addition was apparently ignored.
  - Some chose (v) with the CCA claim of \$404,750, which was computed without using the 75% rate for the Class 29 assets acquired before the current year.
- (b) Many chose (i) \$12,100. In 1981, the year of transfer and before their marriage, Mr. Jack would have to recognize the taxable capital gain of \$2,500 [(\$15,000 - \$10,000) x 1]. In 1984, the year of disposition, Mr. Jack must recognize the balance of the taxable capital gain of \$9,600 by the application of the attribution rule.
- (c) Some chose (iii) \$5,000 because they did not credit the correct amount of \$15,000 for the Waterloo disposal to the CEC account, in accordance with the provision of Subparagraph 14(5)(a)(iv).
- Q.2 This question was not well done. Many students did not know that:
  - (1) the Part II tax is applicable only to the taxation year commencing after 1982;

Continued...

- (2) the PEA at the end of Bull Ltd.'s 1983 taxation year, which commenced before 1983, is nil; and
- (3) the reduction of the PEA in any year in respect of taxable dividends and Part II tax paid in the immediately preceding year cannot exceed the balance of the PEA at the end of that year.
- Q.3 This question, both parts (a) and (b), was well done by all students.
  - (a) Some considered the following three concepts to be the same and did not answer the specific requirement contained in the question:
    - (1) connected corporations;
    - (2) related corporations; and
    - (3) associated corporations.

Some did not support their answers with reasons and statutory references as required by the question. The purpose of this question is to ascertain students' ability to relate the tax laws to a specific situation.

Subsections 256(2), association to the same corporation, and 251(2), related persons, were overlooked by some.

(b) Most recognized the need for associated corporations, which are CCPC in this case, to share the Small Business Deduction, but some did not know the limitation of the Total Business Limit of \$80,000.

Some did not take into consideration the active business income of C Ltd. when allocating the Total Business Limit, resulting in excess allocation and reduced Small Business Deduction in the year.

Q.4 This question was handled satisfactorily by most students, considering the detailed and complex real life information provided in the question. Most students have developed the skill of organization which is the key factor solving the comprehensive questions.

The following mistakes were common in the reconciliation of income for tax purposes:

- (1) did not add back:
  - (a) incorporation fee of \$1,000;
  - (b) foreign advertising (Section 19.1)
- (2) did not deduct:
  - (a) CEC deduction as permitted by Paragraph 20(1)(b);
  - (b) capital cost allowance

Continued ...

(3) deducted CCA by multiplying the \$50,000 given by 1/2 and 4/12; the half year rule was applied and built into the \$50,000 figure; the short taxation year should not be applied as it was indicated in the question that the \$50,000 was for a full taxation year; considered the income from Lights Ltd. to be the business income of Mr. Bell. They are, for tax purposes, two separate taxpayers.

There was no problem in the computation of the corporate tax payable except the Part II tax. The common errors in the computation of the Part II tax were:

- did not include the deemed dividend as taxable dividend subject to Part II tax;
- (2) did not use the Part II tax rule correctly.

Some wasted a lot of time by doing a rough draft of the answer in pencil and re-copying the answer, with minor modifications, again in ink. Some did not compute employment income by source. Some still had problems in dealing with the computation of benefit from stock option.

The \$700 taxable employment benefit was not recognized when in fact it was a premium for a public health services plan.

With respect to income from properties, the following errors were made:

- (1) did not include deemed dividend;
- (2) did not gross up the taxable dividends; and
- (3) did not deduct the bank interest expense, which some considered to be expense of his company.

With respect to capital transactions, the common errors were:

- (1) some problem in computing the TCG of disposition of shares of Wheel;
- (2) did not realize that there could not be a terminal loss on disposition of the building;
- (3) did not know that the LPP loss carried forward should be applied against the \$5,000 LPP gain of the current year; that is, some tried to deduct the \$3,000 from the \$2,500.

Many did not know how to compute the amount of RRSP that could be contributed by way of transfer of retiring allowance and additional contribution. These two contributions formed part of the \$45,000 contribution made in January 1985.

Some did not know that the 1984 restricted farm loss had expired in 1980, and therefore cannot be used in 1984. Some questioned the instruction not to apply the non-capital loss; Mr. Bell may want to "save" the non-capital loss for use in the future years as permitted by the new rules on loss applications. Some had a problem in dealing with the federal tax reduction.

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

15 0.1

(5) (a) The correct answer is (iv) CCA of \$572,250 and ITC of \$21,000.

#### Investment tax credit:

- Rate for the Vancouver region is 7% (given)
- Qualified property acquired in 1984 is \$300,000
- ITC is  $$300,000 \times 7\% = $21,000$
- ITC deducted must reduce the capital cost of qualified property per Subsection 13(7.1)

#### Capital cost allowance:

1983:	UCC - opening		\$		0
	Addition			700,00	00
	Disposal			(30,00	(00
	UCC - before CCA		(	570,00	00
	CCA claimed			(	(0)
1984:	UCC - opening		(	570,00	00
	Addition:				
	Capital cost \$30	00,000			
	Less ITC:				
	\$300,000 x 7% (2	21,000)		279,00	0.0
	UCC - before CCA		_	949,00	_
	CCA claimed			,	
	per Regulation 1100(1)(ta):				
	\$670,000 x 75% 50	2,500			
	ADDO AAA		\$ (5	572,25	(0)

# The incorrect answers are:

- i) Claim no investment tax credit, and claim CCA of: \$700,000 x 75% \$525,000 \$300,000 x 25% 75,000 \$600,000
- ii) Claim ITC of \$21,000, and claim CCA of: \$670,000 x 75% \$502,500 \$300,000 x 25% 75,000 \$577,500

Continued...
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- iii) Claim ITC of \$15,000 (\$300,000 x 5%), and claim CCA of: \$670,000 x 75% \$502,500 (\$300,000 \$15,000) x 25% 71,250 \$573,750
- v) Claim ITC of \$21,000, and claim CCA of: \$670,000 x 50% \$335,000 \$279,000 x 25% 69,750 \$404,750

#### (5) (b) The correct answer is (iii) \$9,600.

- Section 74 is applicable to person who has since become his spouse
- Mr. and Mrs. Jack are residents in Canada and remained married
- Subsection 73(1) is not applicable as Mrs. Jack was not his spouse when the shares were transferred
- Subparagraph 69(1)(b)(ii) is applicable in the year of transfer
- Taxable capital gain, determined as below, must be included in Mr. Jack's 1984 income:

Gross proceeds	\$ 35,000
Less:	
Adjusted cost base \$1	15,000
Selling commission	800 (15,800)
Capital gain	\$ 19,200
axable capital gain: \$19,200 x 1/2	= \$ 9,600

### The incorrect answers are:

ii)

iv)

i) Applied attribution rule incorrectly:

Gross proceeds Less:	\$ 35,000
Adjusted cost base \$10,000 Selling commission 800	(10,800)
Capital gain	\$ 24,200
Taxable capital gain	\$ 12,100
Did not include selling commission:	
(\$35,000 - \$15,000) x 1/2	\$ 10,000
(\$15,000 - \$10,000) x 1/2	\$ 2,500

v) Did not consider application of attribution rule.

Continued...
Page 2 of 10

- (5) (c) The correct answer is (ii) \$4,000.
  - Sections 14 and 20(1)(b) are applicable
  - The maximum deduction allowed under Paragraph 20(1)(b) is:

Cumulative eligible capital account: 0 Opening Additions - 1984 Metro Toronto \$30,000 London, Ontario 12,500 Windsor, Ontario 17,500 5,000 Orillia, Ontario 65,000 65,000 Disposals - 1984 Thunder Bay, Ontario 10,000 Waterloo, Ontario 15,000 (25,000)40,000

Maximum amount is  $$4,000 ($40,000 \times 10%)$ 

The incorrect answers are:

- i) Consider no deduction for goodwill.
- iii) [\$65,000 (\$10,000 + \$5,000)] x 10% = \$5,000
- iv)  $(\$130,000 \$40,000) \times 10\% = \$9,000$
- v)  $(\$130,000 \$50,000) \times 10\% = \$8,000$
- 15 Q. 2
  - (3) Part II tax is first applicable to the 1984 taxation year (1983 taxation year commenced on February 1,1982, which is before 1983 see Subsection 181(3)).
  - (2) All dividends paid were taxable dividends with the exception of the \$10,000 paid under the Subsection 83(2) election.
  - (5) Part II tax payable for the 1984 taxation year:

Lesser of:  $12.5% \times (\$130,000 - \$10,000) = \$15,000$ and  $1/9 \times (3/4 \times \$90,000) = \$7,500$ 

Part II tax payable

\$7,500

Continued...
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(5) Part II tax payable for the 1985 taxation year:

Lesser of:

- i)  $12.5\% \times \$120,000 = \$15,000$
- ii) 1/9 x [\$67,500 + (3/4 x \$120,000) -Lesser of: 3/4 x \$90,000 = \$67,500 and \$120,000 + \$7,500 = \$127,500]

Part II tax payable

\$10,000

20 Q.3 (a)

(1) All the corporations are Canadian-controlled private corporations as they are Canadian private corporations controlled by resident persons.

 $-1/9 \times (\$67,500 + \$90,000 - \$67,500) = \$10,000$ 

- M Ltd. and O Ltd. are associated because one is controlled by the other. (Paragraph 256(1)(a))
- (1) X Ltd. and Y Ltd. are associated because one is controlled by the other. (Paragraph 256(1)(a))
- (2) M Ltd. and X Ltd. are related because M Ltd. is controlled by Michael who is related to John who is his brother and who controls corporation X Ltd. (Subparagraph 251(2)(c)(iii))
- (3) O Ltd. and Y Ltd. are associated because:
  - each of the corporations was controlled by one person and the person who controlled one of the corporations was related to the person who controlled the other.
  - one of these corporations (M Ltd.) owned directly not less than 10% of the issued shares of any class of the capital stock of O Ltd. (100% voting) and Y Ltd. (5% voting and 20% preferred).

(Paragraph 256(1)(c))

- (1) M Ltd. and Y Ltd. are associated because they are associated with the same corporation (O Ltd.). (Subsection 256(2))
- (1) X Ltd. and O Ltd. are associated because they are associated with the same corporation (Y Ltd.). (Subsection 256(2))
- (1) Therefore, all the corporations are associated.

Continued...
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- (8) (b)
  - (1) D Ltd, and C Ltd. are CCPC associated with each other because they are controlled by Mr. King.
  - (1) Small business deduction must be shared by the two associated corporations.
  - (2) Small business deduction is a function of:
    - Canadian active business income
    - Annual business limit allocated
    - Excess of total business limit allocated over the CDA at the end of 1983

(The concept of total business limit was repealed effective from the 1985 taxation year.)

	D Ltd.	C Ltd.
Active business income Cumulative deduction account at	\$120,000	\$40,000
the end of 1983	\$890,000	\$30,000

The maximum amount for small business deduction computation in 1984 based on the remaining CDA is \$80,000 (\$1,000,000-\$890,000 - \$30,000). The maximum small business deduction that can be claimed by D Ltd. and/or C Ltd. in 1984 cannot exceed \$16,800 with the restriction that the maximum amount, on which C Ltd. can claim the small business deduction, cannot exceed \$40,000.

# 50 Q.4 (20) (a) Lights Ltd.:

income per financial statement		\$ 37,000
Add:		
Income Tax	\$ 8,000	
Travel - Mrs. Bell	3,000	
Depreciation	19,000	
Bonus accrued but not paid:		
no reconciliation is required	0	
Incorporation fee	1,000	
Advertising outside of Canada	5,000	36,000
		73,000

Continued...
Page 5 of 10

Deduct:

Capital cost allowance:

 $$50,000 \times \frac{122}{365}$ 

\$16,712

CEC deduction:

(\$1,000 x 1/2) x 10%

50

0

No inventory allowance as there is no opening inventory

Income for income tax purposes Division C deduction Taxable income (16,762) 56,238 (0) \$56,238

(10)

(6)

(All taxable income is earned in a province of Canada.)

# Corporate tax computation:

All income is considered active business income and all such income is considered as manufacturing or processing profits by virtue of the small manufacturer's rule.

\$56,238 x 46%

\$25,870

\$56,238 x 10%

(5,624)

Small business deduction:

\$56,238 x 21%

(11,810)

MPPD:

\$56,238 x 5% Part I tax payable (2,812) \$ 5,624

#### Part II tax payable:

Taxable dividends paid in 1984: \$10,000 + (\$60,000 - \$50,000) = \$20,000

Part II tax payable:

Lesser of

 $12.5% \times $20,000 = $2,500$ 

and

 $1/9 (3/4 \times $56,238) = $4,687$ 

(4) Part II tax payable

\$ 2,500

Summary:

Part I tax payable
Part II tax payable
Total

\$ 5,624 2,500 \$ 8,124

Continued...
Page 6 of 10

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#### (30) (b) John Bell: Subsection 3(a) Income from employment: Wheel \$ 10,257 Wheel - stock options 14,000 24,257 (6) Nuts 36,147 \$ 60,404 Income from properties: Taxable dividends from Lights Ltd. (2) (plus gross up) 30,000 (1) Less bank interest (20,000) 10,000 Income from business: (1) Farming 4,000 (1) Retiring allowance 75,000 149,404 Subsection 3(b) Taxable capital gains: (2) Shares from Wheel 59,500 (2) Rental property 185,000 Taxable net gains: (2) $(\$5,000 - \$3,000) \times 1/2$ 1,000 245,500 ACL - ABIL: (\$37,500 - \$37,500)(0) 245,500 394,904 Subsection 3(c) RRSP deductions: Transfer 35,000 Subsection 60(i): (2)\$3,500 - \$1,200 2,300 (37,300)357,604 Subsection 3(d)

(47,500) 310,104

\$310,104

10,000

37,500

(1)

(1)

Losses from:

Subsection 3(e)

Rental

ABIL

Income

	Division C deductions:		
	Personal exemptions:		
	Self	\$ 3,960	
(1)	Wife	3,470	(7,430)
	Investment income deduction:		
	Taxable dividends received		
	from own company (\$0)		
(1)	TCG from Canadian corporations		(1,000)
	Restricted farm loss:		
	1974 loss expired		(3,000)
	Non-capital loss:		
(1)	did not want to apply		(0)
	Net capital loss:		
(2)	\$245,500 + \$2,000		(247,500)
	Taxable income		\$ 51,174
	Individual tax computation:		
	\$ 51,174		
	(34,664)		\$ 7,304
	\$ 16,510 x 30%		4,953
			12,257
	Dividend tax credit:		
	\$10,000 x 68%		(6,800)
	710,000 x 000		5,457
	Federal tax reduction:		
	\$400 - (\$5,457 > \$6,000) x 10%		(400)
	\$400 (\$5 <b>,</b> 45) \$6000, 15 (6)		5,057
	Income tax withheld:		-,-
	\$4,734 + \$9,228		(13,962)
			\$ 8,905
(4)	Tax refund		<del>y 0,000</del>
	Towns from and armonta.		
	Income from employments:		
	Wheel:		
	Gross salary		\$ 11,250
	Less deductions:		7 11,250
	Employment expense (maximum)	\$ 500	
	Canada Pension Plan	234	
		259	(993)
	Unemployment Insurance	433	\$ 10,257
			\$ 14,000
	Income from stock option		3 14,000
	Nuts:		ć 10 000
	Bonus payment		\$ 10,000
	Gross salary		27,000
	Taxable benefit premium		700
			37,700
	Less deductions:		
	Employment expense	\$ 0	
	Canada Pension Plan	104	
	Unemployment Insurance	249	
	Registered Pension Plan	1,200	(1,553)
			\$ 36,147
	291		Continued
35			Page 8 of 10

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### Stock options:

10,000 shares of Wheel were sold on March 15, 1984, for \$20 per share.

The shares from options exercised on March 15, 1982 and March 15, 1983 were disposed of within 2 years from the dates of exercise, Subsection 7(1.1) is not applicable. Therefore, employment income of 1984, year of disposition, must include the following amounts:

1982:

$$2,000 \times (\$9 - \$8) = \$2,000$$

1983:

$$3,000 \times (\$13 - \$9) = \frac{12,000}{\$14,000}$$

### Income from property:

Interest on bank loan:  $$500,000 \times 12\% \times 122 = $20,000$ 366

Dividends:

Deemed:

0 G

\$ 10,000
10,000
10,000
\$ 30,000

Rental income:

Gross rental \$ 30,000

Less expenses: Interest

\$27,000 Property tax 8,000 Repairs 5,000 Loss from rental \$ 10,000

Income from business:

Farming income (Section 31) \$ 4,000

## Other source of income:

Lump sum payment of \$75,000 received on May 30, 1984 is considered as retiring allowance, (Subsection 248(1)), and is required to be included as income under Subparagraph 56(1)(a)(ii).

> Continued ... Page 9 of 10

(40,000)

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However, Bell could transfer certain amount of this payment into a RRSP by virtue of Subsection 60(j.1). The amount that can be transferred is:

 $$3,500 \times 10 = $35,000$ 

(Wheel has no pension plan for its employees.)

## Capital transactions:

Shares from stock options:

	\$200,000
\$ 2,000	
10,000	
12,000	
18,000	
39,000	(81,000)
	\$119,000
	\$ 59,500
	\$600,000
	(200,000)
	400,000
ıg	
	10,000 12,000 18,000 39,000

otherwise determined: (\$130,000 - \$100,000)Capital gain

(30,000)\$370,000

Taxable capital gain

\$185,000

Listed personal property (stamp):

Proceeds	\$ 7,000
ACB (median rule)	(2,000)
Gain on LPP	\$ 5,000

Allowable business investment loss (sister's company):

Proceeds	\$ 20,000
ACB	(95,000)
Capital loss	\$ 75,000
ABIL	\$ 37,500

UND OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# AUDITING 417 EXAMINATION December, 1984

Marks Time: 3 Hours

13 Q.1 You are meeting with executives of Cooper Cosmetics Ltd. to arrange your firm's engagement to examine the corporation's financial statements for the year ended December 31, 1984.

This will be your first audit of Cooper Cosmetics.

One executive of Cooper Cosmetics suggests that audit work be divided among three staff members so one person would examine asset accounts, another liability and equity accounts, and the third, revenues and expenses. He believes that this approach would exploit staff specialization and minimize audit time. Another executive suggests that you instruct your staff to go directly to testing year-end balances, without "wasting time reviewing the company's controls". Finally, the controller states that he would like you to begin the audit "with a clean slate" and not contact the predecessor auditor.

#### REQUIRED:

- (2) (a) Without regard to the above situation, to what extent (if at all) should a CGA follow his client's suggestions for the conduct of an audit? Discuss.
- (3) (b) Is the assignment of audit work by account category (assets, liabilities, revenues and expenses) likely to be efficient? Explain.
- (4) (c) Is the executive's suggestion that you "go directly to testing year-end balances" acceptable? Explain.
- (4) (d) Should you accept the controller's suggestion and not contact the predecessor auditor? Explain.
- 12 Q.2 G. Kaplan, senior partner of Kaplan and Birnberg, CGAs, has completed the examination of the financial statements of the Harcourt Co. Ltd., as of and for the year ended December 31, 1983. Kaplan and Birnberg also examined and reported on the financial statements for the previous year. The fieldwork was completed on March 10, 1984 and Kaplan is now preparing to draft his report in light of the following information:

Continued...
Page 1 of 9

- i) Harcourt is not presenting comparative financial statements.
- ii) Harcourt does not wish to present a statement of changes in financial position for 1983.
- iii) Because Harcourt deals extensively with government agencies,
  Kaplan was unable to perform normal accounts receivable
  confirmation procedures, but alternative procedures were
  used to satisfy Kaplan as to the validity of the receivables.
- iv) Harcourt is the defendant in a major litigation, the outcome of which is highly uncertain. The litigation and its possible effects have been properly disclosed in footnote number 11 to the financial statements.

#### REQUIRED:

Consider all the facts given above and prepare an auditor's report in good form for the case.

16 Q.3 You are the senior auditor in charge of the examination of the financial statements of Superior Fabrics, which manufactures men's clothing. The company has two manufacturing plants and a central warehouse.

You are beginning your review and evaluation of internal controls with regard to order processing, billing, and shipments. The controller has provided you with the following description of the company's procedures:

- (a) Salespeople in the field prepare sales orders in triplicate. Copies are distributed as follows:
  - i) Sales department.
  - ii) Warehouse (as authority for shipping).
  - iii) Accounting department.
- (b) Merchandise is usually shipped promptly by warehouse employees.
- (c) The accounting department's copy of the sales order is used to prepare four-part invoices (about 750 each month). The copies of the invoice are distributed as follows:
  - i) Customer.
  - ii) Filed numerically (becomes sales register).
  - iii) Filed alphabetically (becomes accounts receivable record).
  - iv) Filed by salesperson's name (becomes basis for determining commissions).

Continued...
Page 2 of 9

- (d) The billing clerk retains the alphabetical file of invoices and also serves as cashier. When invoices are paid, they are stamped with the date paid and transferred to another alphabetical file. A detailed cash receipts book is prepared.
- (e) The billing clerk prepares a monthly sales tape from the numerical invoice file and sends a note to the bookkeeper which becomes the basis for the sales entry in the general ledger.

#### REQUIRED:

(12) (a) List six weaknesses in the company's accounting internal controls in the system described above and state your recommended improvements. Format your answer, in your examination booklet as follows:

weaknesses	кесопшенаеа	Improvements	
			ì

- (4) (b) Describe four substantive audit tests which you would perform to compensate for the weaknesses in controls noted in part (a).
- 17 Q.4 As part of her audit of the financial statements of Acme Distributors Ltd., Lesley Smart, CGA, confirmed accounts receivable with customers. Acme deals with some 400 retail stores and the recorded book value of the receivables at year-end is \$1,274,315. Lesley sent positive confirmations to a stratified random sample of 30 stores whose recorded account balances total \$114,710. She received the following exceptions:

ccount Number	Nature of Exception
A3174	Customer claims that goods shipped under an invoice for \$1,800 were never received by them. Recorded amount is \$4,200; customer claims to owe \$2,400.
<b>T417</b> 9	Customer in bankruptcy. Account balance as recorded is \$6,200.
C9422	Customer claims to have paid \$1,000 three months ago, but Acme has no record of receiving the payment. Recorded amount is \$1,500; customer claims to owe \$500.
X5611	Customer refuses to acknowledge any indebtedness because of a dispute with

balance is \$7,000.

Acme which may go to litigation. Recorded

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All other accounts in the sample were confirmed at the recorded amount.

After reviewing these exceptions, Lesley was not sure what to do next. In particular, she was not certain whether the amounts were material or how to go about making a materiality judgment.

#### REQUIRED:

- (5) (a) Explain what is meant by the concept of materiality. What factors should an auditor consider in deciding whether or not a particular misstatement is deemed to be material?
- (4) (b) Should Lesley have thought about materiality before she began her audit of receivables? How should she relate problems with accounts receivable to a materiality judgment concerning the fairness of the financial statements as a whole? Explain.
- (5) (c) Assume a "worst case" situation (maximum loss to Acme) is expected to occur. What adjustment (if any) should Lesley Smart ask the client to make? Be specific as to amount and explain your answer.
- (3) (d) Assume Lesley believes that the exceptions are material, but the client refuses to make any changes to the financial statements. What should she do?
- 12 Q.5 During his audit of the financial statements of Nuclear Instruments Ltd. for the year ended December 31, 1983, Alan Sharp, CGA, encountered the following situations:
  - to include a substantial number of overstocked and obsolete items. He discussed the problem with the production manager who claimed that "everything was good and would eventually be used".
  - ii) During his inventory observation, the client restricted Alan's access to certain production departments which included a material amount of work in process inventory. The production manager explained that the processes used were a trade secret and highly complex "so you would not understand them anyway". However, he furnished Alan with a list of inventory in these locations.

#### REQUIRED:

- (5) (a) List <u>five</u> audit procedures which a CGA should perform to determine the amount of a possible write-down of inventory for obsolescence. The client maintains a perpetual inventory system.
- (4) (b) How (if at all) would Alan's inability to observe a material amount of the work in process inventories affect his auditor's report? Explain.
- (3) (c) To what extent would a letter of representation signed by the production manager constitute appropriate audit evidence with respect to inventory? Explain.
- Q.6 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

### NOTE: 1 1/2 marks each.

- (a) Subsequent events affecting the realization of assets ordinarily will require adjustment of the financial statements under examination because such events typically represent:
  - the culmination of conditions that existed at the balance sheet date.
  - ii) the final estimates of losses relating to casualties occurring in the subsequent events period.
  - iii) the discovery of new conditions occurring in the subsequent events period.
  - iv) the preliminary estimate of losses relating to the balance sheet date.
- (b) All corporate capital stock transactions should ultimately be traced to the:
  - i) minutes of the Board of Directors.
  - ii) cash receipts journal.
  - iii) cash disbursements journal.
  - iv) numbered stock certificates.

- (c) Which of the following is  $\underline{\text{not}}$  a typical analytical review procedure?
  - i) Study of relationships of the financial information with relevant non-financial information.
  - ii) Comparison of the financial information with similar information regarding the industry in which the entity operates.
  - iii) Comparison of recorded amounts of major disbursements with appropriate invoices.
  - iv) Comparison of the financial information with budgeted amounts.
- (d) Which of the following is the best audit procedure for determining the existence of unrecorded liabilities?
  - i) Examine confirmation requests returned by creditors whose accounts appear on a subsidiary trial balance of accounts payable.
  - ii) Examine unusual relationships between monthly accounts payable balances and recorded purchases.
  - iii) Examine a sample of invoices a few days prior to and subsequent to year-end to ascertain whether they have been properly recorded.
  - iv) Examine a sample of cash disbursements in the period subsequent to year-end.
- (e) Which of the following might be detected by an auditor's cut-off review and examination of sales journal entries for several days prior to and subsequent to the balance sheet date?
  - i) Lapping year-end accounts receivable.
  - ii) Inflating sales for the year.
  - iii) Kiting bank balances.
  - iv) Misappropriating merchandise.
- (f) In a first audit of a new company the auditor's report will:
  - i) remain silent with respect to consistency.
  - ii) state that the accounting principles have been applied on a consistent basis.
  - iii) state that accounting principles have been applied consistently during the period.
  - iv) state that the consistency standard does not apply because the current year is the first year of audit.
- (g) In general, material irregularities perpetrated by which of the following are most difficult to detect?
  - i) Cashier.
  - ii) Controller.
  - iii) Internal auditor.
  - iv) Keypunch operator.

Continued...
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- (h) The auditor's count of the client's cash should be coordinated to coincide with the:
  - i) study of the system of internal control with respect to cash.
  - ii) close of business on the balance sheet date.
  - iii) count of marketable securities.
  - iv) count of inventories.
- (i) When using a statistical sampling plan, the auditor would probably require a smaller sample if the:
  - i) population increases.
  - ii) desired precision interval narrows.
  - iii) desired reliability decreases.
  - iv) expected error occurrence rate increases.
- (j) An important statistic to consider when using a statistical sampling audit plan is the population variability. The population variability is measured by the:
  - i) sample mean.
  - ii) standard deviation.
  - iii) standard error of the sample mean.
  - iv) estimated population total minus the actual population
    total.
- (k) An auditor will use the EDP test data method in order to gain certain assurances with respect to the:
  - i) input data.
  - ii) machine capacity.
  - iii) procedures contained within the program.
  - iv) degree of keypunching accuracy.
- (1) After a preliminary phase of the review of a client's EDP controls, an auditor may decide not to perform compliance tests related to the control procedures within the EDP portion of the client's internal control system. Which of the following would not be a valid reason for choosing to omit compliance tests?
  - i) The controls appear adequate.
  - ii) The controls duplicate operative controls existing elsewhere in the system.
  - iii) There appear to be major weaknesses that would preclude reliance on the stated procedure.
  - iv) The time and dollar costs of testing exceed the time and dollar savings in substantive testing if the compliance tests show the controls to be operative.

- (m) The purpose of using generalized computer audit software is to test and analyze a client's computer:
  - systems software. i)
  - equipment. ii)
  - iii) records.
  - processing logic. iv)
- (n) Which of the following best describes what is meant by generally accepted auditing standards?
  - Procedures to be used to gather evidence. i)
  - Audit objectives typically applied in auditing ii) engagements.
  - iii) Formal pronouncements in the CICA Handbook.
  - iv) Measures of the quality of the auditor's performance.
- An auditor evaluates the existing system of internal control in order to:
  - determine the extent of compliance tests which must i) be performed.
  - determine the extent of substantive tests which ii) must be performed.

  - iii) ascertain whether fraud is probable.
    iv) ascertain whether any employees have incompatible functions.
- To achieve effective internal accounting control over (p) fixed-asset additions, a company should establish procedures that require:
  - capitalization of the cost of fixed-asset additions i) in excess of a specific dollar amount.
  - performance of recurring fixed-asset maintenance work ii) solely by maintenance department employees.
  - classification as investments, those fixed-asset iii) additions that are not used in the business.
  - authorization and approval of major fixed-asset iv) additions.
- A client's materials-purchasing cycle begins with requi-(q) sitions from user departments and ends with the receipt of materials and the recognition of a liability. An auditor's primary objective in reviewing this cycle is to:
  - evaluate the reliability of information generated as i) a result of the purchasing process.
  - investigate the physical handling and recording of ii) unusual acquisitions of materials.
  - consider the need to be on hand for the annual physical count if this system is not functioning properly.
  - ascertain that materials said to be ordered, received, iv) and paid for are on hand.

Continued ... Page 8 of 9

- (r) Which of the following best describes the primary reason for the auditor's use of flowcharts during an audit engagement?
  - To comply with the requirements of generally accepted auditing standards.
  - ii) To classify the client's documents and transactions by major operating functions, e.g., cash receipts, cash disbursements, etc.
  - iii) To record the auditor's understanding of the client's system of internal accounting control.
  - iv) To interpret the operational effectiveness of the client's existing organizational structure.
- (s) Which of the following actions should be avoided by a CGA who is the auditor for a particular company?
  - i) Rendering management advisory services to that company.
  - ii) Being on friendly terms with the officers of the company.
  - iii) Preparing the corporate income tax return.
  - iv) Owning a material number of shares of common stock of that company.
- (t) The existence of a material related party transaction during a fiscal year requires:
  - i) that the auditor issue a qualified opinion.
  - ii) disclosure in the footnotes to the financial statements.
  - iii) that the auditor extend his compliance testing.
  - iv) that the auditor resign from the engagement.

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EMI OF EXAMINATION

#### CERTIFIED GENERAL ACCOUNTAINTS! ASSOCIATION OF CANADA

# AUDITING 417 EARLY OFFICE December, 1984 EXAMINER'S ETTERS

#### **General**

Overall, the results of this examination were fair. The students who had problems with any question, typically had difficulty with the whole examination.

#### Specific

- Q.1 Generally, this question was answered reasonably well. However, students frequently wrote that an auditor should never follow client suggestions (part (a)), which is too strong a position. A common answer to part (c) was that an auditor must always review internal controls under GAAS, whether or not the intention is to rely upon such controls which is not true. Finally, many answers did not state that the CGA Code of Ethics requires that a successor attempt to contact the predecessor auditor (part (d)).
- Q.2 Performance on this question was typically either very good or very poor. Many students obtained partial marks by simply writing a standard unqualified opinion. However, a large number of students appeared to have no idea how to write any audit opinion. Very few wrote a proper middle paragraph explaining the significance of a lack of a statement of changes in financial position.
- Q.3 Most students did very well on this question, especially on part (a). They were less proficient in describing substantive tests which would be appropriate given the weaknesses. A common error was to merely describe a standard substantive test such as "confirm the accounts receivable" which would be performed in any event and has nothing to do with the control weaknesses in the case.
- Most responses to this question were inadequate. Few students correctly identified the factors which should be considered when making a materiality judgment (part (a)). Answers tended to be quite vague. Part (b) was answered reasonably well. In part (c), most students only wrote about the "known errors" in the sample, and made no attempt to extrapolate ("most likely error") to the population. Since few students discussed the concept of "most likely error", very few were led to a possible answer for part (d), i.e., that the auditor collects more evidence before concluding that a qualified or adverse opinion is appropriate.
- Q.5 Most students did reasonably well on this question, especially parts (a) and (c). In part (b), quite a few said that the auditor could always "work around" the client restriction, even if the amount were very material and the auditor believed that observation of

Continued...

inventory were reasonable and practicable under the circumstance (that is, if the client were capriciously barring the auditor from observing the inventory). Note that, in such a case, a denial of opinion is appropriate, and alternative procedures are irrelevant.

Q.6 Students had the most difficulty with the items on statistical sampling - (i) and (j) - and EDP auditing - questions (k), (l) and (m). In particular, question (i) was frequently answered as 1 rather than 3, and question (l) was frequently answered as 3 rather than 1.

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# AUDITING 417 DATE NATIONAL December, 1984 SUGGESTED SOLUTIONS

Marks

Time: 3 Hours

- 13 Q.1
  - (2) (a) During the conduct of an audit, it is not uncommon for the client's employees to make suggestions concerning approaches and procedures which might be performed. The CGA should consider these suggestions but must make an independent judgment in planning the audit program and must not subordinate these judgments to others.
  - (3) (b) The suggested staff assignment is not likely to be efficient. Many of the financial statement components are interdependent and naturally fall into related groups (which the text refers to as cycles). For example, sales, accounts receivable, and cash collections form such a group. In addition, an auditor is very unlikely to assign equal audit time to the three groups of accounts mentioned. Most substantive tests are concerned with the year-end totals of the balance sheet accounts, since this approach also indirectly tests total net income.
  - (4) (c) Going directly to testing year-end balances is not likely to be an acceptable approach and will certainly not be cost effective. Generally accepted auditing standards state that "there should be an appropriately organized study and evaluation of those internal controls on which the auditor subsequently relies in determining the nature, extent and timing of auditing procedures". If an auditor (as suggested by the executive) does not rely on internal control at all, substantive testing might be expanded dramatically to try to compensate. This will certainly be an expensive way to proceed, and, more important, the auditor may not be able to obtain sufficient assurance in this manner to express an unqualified audit opinion.
  - (4) (d) You should attempt to contact the predecessor auditor. CGA-Canada Rule of Conduct 709 requires that you attempt to determine from the predecessor whether there is any reason why appointment as a successor auditor should not be accepted. Also, the Canada Business Corporation Act requires a successor auditor to communicate with the predecessor auditor, asking the circumstances and reasons for the latter's replacement. The controller's suggestion is therefore definitely not acceptable.

12 Q.2 Of the four situations mentioned in the problem, only Harcourt's failure to present a statement of changes in financial position requires a modification of the standard auditor's report. A statement of changes in financial position is normally required for fair presentation in accordance with generally accepted accounting principles. Hence, exclusion of the statement is a violation of the CICA Handbook.

To the Shareholders of Harcourt Co. Ltd.

- (3) We have examined the balance sheet of Harcourt Co. Ltd. as at December 31, 1983, and the statements of income and retained earnings for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.
- (3) The financial statements do not include a statement of changes in financial position. However, inclusion of this statement is required by the CICA Handbook.
- (4) In our opinion, except for the failure to include a statement of changes in financial position, these financial statements present fairly the financial position of the company as at December 31, 1983, and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.
- (2) City March 10, 1984

Kaplan and Birnberg, CGAs

16 Q.3

(12) (a) Weaknesses

### Recommended Improvements

- (2) i) Sales orders are not approved before shipment nor is there credit approval for sales on account.
- The order should be approved by a responsible person in the sales department. Sales on account should be authorized by the credit manager.
- (2) ii) Shipments are made by warehouse employees.

There should be a separate shipping department.

(2) iii) No documentation, such as a bill of lading, is prepared when goods are shipped. Accounting department assumes goods have been shipped and bills clients from order received

A shipping document should be prepared and a copy sent to the billing clerk as evidence of shipment. An invoice should be prepared based on the approved sales order and the notice of shipment.

iv) Billing clerk just sends (2) a note to the bookkeeper as a basis for the sales entry in the ledger.

from sales person.

The numerical file copy of the invoice should be sent to accounting. A copy of the order and shipping document should accompany the invoice. The documents should be reviewed for numerical sequence and completeness. A summary of invoices can then serve as the basis for the sales entry.

lost, no invoice would be prepared.

Sales orders are not Sales orders should be prenumbered. If one is numbered and be approved before invoicing.

Accounts receivable are (2) vi) maintained by the billing clerk.

The open invoice file should be maintained in accounting.

vii) Billing clerk acts as cashier.

The cashier should be a separate person with no accounting responsibilities. A record of cash receipts should serve as a basis for updating the accounts receivable.

NOTE: Maximum 12 marks. 1 mark for each weakness to 6 marks. 1 mark for each recommended improvement to 6 marks.

(4) (b) (1) i)

Select a sample of paid invoices from the alphabetical file. Trace to remittance advice from customer as evidence of payment. Trace to warehouse copy of sales order and examine evidence of shipment, such as freight bills from common carriers.

> Continued... Page 3 of 6

- (1) ii) Test the numerical sequence of invoices in the file which serves as the sales register. For a sample of months, recompute the amount of monthly sales and trace to recording in general ledger.
- (1) iii) Significantly expand the confirmation of accounts receivable at year-end. Use positive type confirmation requests and consider confirming a sample of specific recorded sales directly with customers.
- (1) iv) Significantly expand the evaluation of collectibility of accounts receivable. This is necessary since there is no credit approval before shipment.
- (1) (v) Since internal control over cash collections is apparently poor, expand your tests over cash receipts, disbursements and the cash balance at year-end.

NOTE: Maximum of 4 marks.

#### 17 2.4

(5) (a) The concept of materiality refers to the importance to readers of an error or omission in the financial statements. A material misstatement is deemed to affect in some way the decisions of users who rely on the statements.

Factors which should be considered in making a materiality judgment include:

- i) Size of the misstatement relative to the size of the client.
- ii) Effect of the misstatement on net income.
- iii) Does the misstatement involve a fraud?
- iv) Can the misstatement affect contractual obligations?
   (e.g., maintaining a certain current ratio)
- v) Does the misstatement affect the trend of net income?
- (4) (b) Since an auditor collects information in stages (e.g., for receivables, inventory, fixed assets, etc.) rather than for all accounts simultaneously, it is desirable to allocate to each segment a preliminary estimate of an overall amount which is deemed material. This should be done before a sampling plan is devised and evidence collected, as the amount allocated will affect the nature, extent and timing of audit procedures.

The materiality of a misstatement of accounts receivable must be judged with respect to its impact on the balance of the item itself (i.e., receivables) as well as its impact on aggregate amounts such as net income, total assets, or working capital.

Continued...
Page 4 of 6

- (5) (c) The auditor needs to consider three levels of error:
  - i) Known error in the sample; in this case an overstatement of an asset of \$16,000.
  - ii) Most likely error extended to the population; in this case the recorded balance of \$1,274,315 is estimated to be overstated by \$177,744. (\$1,274,315 \$1,274,315 (\$98,710/\$114,710)).
  - iii) Possible error which may occur because of imprecision in the sampling process. In this case, since there is no evidence regarding sampling imprecision, Lesley's best estimate of the required adjustment is \$177,744.
- (3) (d) If the client refuses to make an adjustment based on the available evidence, Lesley can suggest that additional evidence be obtained so that the required adjustment can be determined with greater precision. If the client is unwilling to do this, Lesley should issue a qualified or adverse opinion.
- 12 0.5
  - (5) (a) i) During the inventory observation be alert for items which seem to show little physical movement (the "dust and rust" test).
    - ii) Review perpetual inventory records to determine rate of requisition and replenishment.
    - iii) Compute the amount of stock-on-hand relative to current usage (inventory turnover).
    - iv) For raw materials, verify that item is still being used in production by reference to current bills of material.
    - v) Perform a lower of cost or market test.
    - vi) If necessary, retain the services of an expert to determine the possible technological obsolescence of inventory items.

NOTE: 1 mark for each audit procedure to a maximum of 5 marks.

- (4) (b) This is an example of a scope restriction imposed by the client. If such a restriction is deemed to be very significant, then an auditor should deny an opinion on the financial statements. In such a case, there should be no reference to audit procedures performed as this would tend to dilute the impact of the denial of opinion. For a less significant restriction (such as seems to exist in this case) if the auditor can establish the existence of the work in process inventories using alternative procedures, an unqualified opinion can be issued. On the other hand, if the auditor is unable to establish the physical existence of the inventories, a scope qualification ("except for" form) would be appropriate.
- (3) (c) A letter of representation is not evidence as such. In particular, such a letter cannot compensate for a lack of sufficient competent evidential matter. A letter of representation merely serves to remind management of their primary responsibility for the contents of the financial statements.

30	Q.6	(a)	i)	(k)	iii)
		(b)	i)	(1)	i)
		(c)	iii)	(m)	iii)
		(d)	iv)	(n)	iv)
		(e)	ii)	(0)	ii)
		(f)	i)	(p)	iv)
		(g)	ii)	(p)	i)
		(h)	iii)	(r)	iii)
		(i)	iii)	(s)	iv)
		(j)	ii)	(t)	ii)

NOTE: 1 1/2 marks each.

100

END OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF EARLING

# AUDITING 417 EXAMINATION June, 1985

Marks Time: 3 Hours

12 Q.1 During an examination of financial statements in accordance with generally accepted auditing standards, auditors obtain sufficient appropriate audit evidence using several evidence gathering methods or techniques. These techniques are applied at a certain time, with respect to the client's fiscal year, and the results are documented in working papers.

## REQUIRED:

- (6) (a) List the six evidence gathering techniques used by auditors.
- (3) (b) What factor(s) determine the timing of substantive procedures, in particular whether or not an auditor can carry out substantial portions of the examination at interim dates?
- (3) (c) The major purpose of working papers is to document the evidence gathered by an auditor. List three other purposes or uses of audit working papers.
- 18 Q.2 Following are three separate auditing situations which you encounter:
  - (6) (a) You have agreed to audit the financial statements of United Wholesalers Ltd. for the year ended December 31, 1984. The company has not been audited previously. The company maintains perpetual inventory records, and you have arranged to observe the taking of the inventory at December 31, 1984. The controller has also informed you that a physical inventory was last taken on December 31, 1982.
  - (6) (b) During 1984, your client, a small manufacturing company, contracted with a computer service bureau to perform all of its data processing. In previous years, this work had been done manually within the company. Under the new system, company personnel still maintain the original transaction documents, but forward copies to the service bureau. A trial balance and a set of financial statements is received from the service bureau each month, along with some detailed analyses of accounts for use by management.

Continued...
Page 1 of 8

(6) (c) In auditing the finished goods inventories of your client, Television Manufacturers of Canada Ltd., you notice that the company's manufacturing overhead rate has increased from 160% of direct labor dollars (last year) to 300% of direct labor dollars (this year). Sales volume has been falling in recent years, and you note that, for some models, the inventory unit cost exceeds the listed selling price.

#### REQUIRED:

Explain what specific action should be taken with respect to obtaining additional appropriate evidence for each case. Also, explain how each situation could affect the auditor's report.

12 Q.3 Stein, CGA, has been engaged to examine the financial statements of Vancouver Holdings Ltd. Since this will be his first audit of the company, Stein is particularly concerned about audit risk and is aware that, after completion of all audit tests, overall risk (OR) is:

$$OR = \frac{JR}{JR + (1 - IR)}$$

where, JR denotes joint risk and IR denotes inherent risk.

#### REQUIRED:

- (2) (a) Explain what is meant by the term inherent risk.
- (6) (b) The <u>joint risk</u> of an undetected error depends on (or consists of) <u>several elements</u>. Describe these elements and explain how they are interrelated.
- (4) (c) One source of audit risk arises from the fact that any system of internal control has inherent limitations. That is, no system is likely to be completely effective, regardless of the care followed in its design and implementation. List four reasons why the dependability of internal controls is inherently limited.

14 Q.4 The following report was drafted by your inexperienced assistant at the completion of an audit engagement. You have reviewed matters thoroughly and have properly concluded that the scope limitation was not imposed by the client and warrants a qualified opinion, but not a denial of opinion.

To the Controller of Pacific Rim Enterprises:

We have examined the attached financial statements of Pacific Rim Enterprises as of December 31, 1984. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

On January 25, 1985, the company issued bonds in the amount of \$3,000,000 for the purpose of financing plant expansion. As mentioned in Note 8 to the financial statements, the bond indenture agreement restricts the payment of future cash dividends to amounts earned after December 31, 1984.

One of the company's consolidated subsidiaries did not take a physical inventory this year because of certain production problems. We therefore did not make tests of inventory quantities, but made extensive tests of book inventory amounts for accuracy of calculations and pricing. Since the amount involved is material, we are unable to express an opinion on the financial statements. However:

Subject to the limitation regarding inventory, in our opinion, the attached balance sheet presents the financial position of Pacific Rim Enterprises at December 31, 1984. The attached statement of income and retained earnings presents income, expenses, and transactions affecting retained earnings in accordance with generally accepted accounting principles.

December 31, 1984

Smith & Company, CGAs (Signed)

#### REQUIRED:

Identify all of the deficiencies in the above draft of the proposed report. (DO NOT draft a corrected report.)

Q.5 During the current year, the Coquitlam Division of the Burns Corporation began to experience cash flow difficulties. A cursory review by Burns' controller suggested a problem with the collection of customer receivables at the Division. The controller therefore asked Burns' internal auditor to perform a special investigation. The internal auditor studied the Division's billing and collection cycle and noted the following:

The accounting department at the Division employs one bookkeeper, who receives and opens all incoming mail. This bookkeeper is also responsible for depositing receipts, filing remittance advices on a daily basis, recording receipts in the cash receipts journal, and posting receipts to the customer subsidiary ledger as well as the general ledger. There are cash sales. The bookkeeper also prepares and mails monthly statements to customers. In addition to the bookkeeper, the Division has several clerical employees.

On the basis of the above information and discussion with various Division employees, the internal auditor suspected that the bookkeeper was lapping accounts receivable.

#### REQUIRED:

- (4) (a) Explain what is meant by "lapping" and describe how this fraud is perpetrated.
- (6) (b) List the changes which should be made to the system of internal control to prevent (as far as possible) the occurrence of lapping.
- (4) (c) List the key procedures which the internal auditor should perform to determine whether, in fact, the bookkeeper is lapping the receivables.
- 30 Q.6 Select the <u>best answer</u> for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will not be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

NOTE: 1 1/2 marks each.

Continued...
Page 4 of 8

- (a) Management's refusal to furnish a written representation on a matter which the auditor considers essential constitutes:
  - i) evidence of a defalcation.
  - ii) a violation of generally accepted accounting principles.
  - iii) an uncertainty which requires footnote disclosure.
  - iv) a situation which requires further investigation.
- (b) When negotiable securities are of considerable volume, planning by the auditor is necessary to guard against:
  - i) unauthorized negotiation of the securities before they are counted.
  - ii) unrecorded sales of securities after they are counted.
  - iii) substitution of securities already counted for other securities which should be on hand but are not.
  - iv) substitution of authentic securities with counterfeit securities.
- (c) When testing a computerized accounting system, which of the following is not true of the test data approach?
  - i) Test data are processed by the client's computer programs under the auditor's control.
  - ii) The test data must consist of all possible valid and invalid conditions.
  - iii) The test data need consist of only those valid and invalid conditions in which the auditor is interested.
  - iv) Only one transaction of each type need be tested.
- (d) The <u>least</u> crucial element of internal control over cash is:
  - i) separation of cash record keeping from custody of cash.
  - ii) preparation of the monthly bank reconciliation.
  - iii) batch processing of cheques.
  - iv) separation of cash receipts from cash disbursements.
- (e) An auditor examining inventory may appropriately apply sampling for attributes in order to estimate the:
  - i) average price of inventory items.
  - ii) percentage of slow-moving inventory items.
  - iii) dollar value of inventory.
  - iv) physical quantity of inventory items.

- (f) The auditor is most likely to presume that a high risk of a defalcation exists if:
  - i) the client is a multinational company that does business in numerous foreign countries.
  - ii) the client does business with several related parties.
  - iii) inadequate segregation of duties places an employee in a position to perpetrate and conceal thefts.
  - iv) inadequate employee training results in lengthy
     EDP exception reports each month.
- (g) Which of the following is an element of sampling risk?
  - i) Choosing an audit procedure that is inconsistent with the audit objective.
  - ii) Choosing a sample size that is too small to achieve the sampling objective.
  - iii) Failing to detect an error on a document that has been inspected by the auditor.
  - iv) Failing to perform audit procedures that are required
    by the sampling plan.
- (h) Which of the following statements regarding auditor documentation of the client's system of internal control is correct?
  - i) Documentation must include flowcharts.
  - ii) Documentation must include procedural write-ups.
  - iii) No documentation is necessary although it is desirable.
  - iv) No one particular form of documentation is necessary, and the extent of documentation may vary.
- (i) If the achieved precision range of a statistical sample at a given reliability level is greater than the desired range, this is an indication that:
  - i) standard deviation was larger than expected.
  - ii) standard deviation was less than expected.
  - iii) non-sampling error exists.
  - iv) population size was smaller than expected.
- (j) Which of the following is <u>not</u> a characteristic of a batch processed computer system?
  - The collection of like transactions which are sorted and processed sequentially against a master file.
  - ii) Keypunching of transactions, followed by machine processing.
  - iii) The production of printouts.
  - iv) The posting of a transaction, as it occurs, to several files, without intermediate printouts.

- (k) Skates, an independent auditor, was engaged to perform an examination of the financial statements of Apex Incorporated one month after its fiscal year had ended. Although the inventory count was not observed by Skates, and accounts receivable were not confirmed by direct communication with debtors, Skates was able to gain satisfaction by applying alternative auditing procedures. Skates' auditor's report will probably contain:
  - i) an "except for" qualification.
  - ii) an unqualified opinion and an explanatory middle paragraph.
  - iii) either a qualified opinion or a disclaimer of opinion.
  - iv) a standard unqualified opinion.
- (1) Audit evidence can come in different forms with different degrees of persuasiveness. Which of the following is the least persuasive type of evidence?
  - i) Vendor's invoice.
  - ii) Bank statement obtained from the client.
  - iii) Computations made by the auditor.
  - iv) Prenumbered client invoices.
- (m) When a customer fails to include a remittance advice with a payment, it is a common practice for the person opening the mail to prepare one. Consequently, mail should be opened by one of the following company employees. Which one?
  - i) Credit manager.
  - ii) Receptionist.
  - iii) Sales manager.
  - iv) Accounts receivable clerk.
- (n) Which of the following procedures relating to the examination of accounts payable could the auditor delegate entirely to the client's employees?
  - i) Test footings in the accounts payable ledger.
  - ii) Reconcile unpaid invoices to vendors' statements.
  - iii) Prepare a schedule of accounts payable.
  - iv) Mail confirmations for selected account balances.
- (o) The auditor is examining copies of sales invoices only for the initials of the person responsible for checking the extensions. This is an example of a:
  - i) compliance test.
  - ii) substantive test.
  - iii) dual-purpose test.
  - iv) test of balances.

- (p) As a result of analytical review procedures, the independent auditor determines that the gross profit percentage has declined from 30% in the preceding year to 20% in the current year. The auditor should:
  - express an opinion which is qualified due to inability of the client company to continue as a going concern.
  - ii) evaluate management's performance in causing this decline.
  - iii) require footnote disclosure.
  - iv) consider the possibility of an error in the financial statements.
- (q) An audit independence issue might be raised by the auditor's participation in management advisory services engagements. Which of the following statements is most consistent with the profession's attitude toward this issue?
  - i) Information obtained as a result of a management advisory services engagement is confidential to that specific engagement and should **not** influence performance of the attest function.
  - ii) The decision as to loss of independence must be made by the client, on the basis of the facts of the particular case.
  - iii) The auditor should **not** make management decisions for an audit client.
  - iv) The auditor who is asked to review management decisions is also competent to make these decisions and can do so without loss of independence.
- (r) A company holds bearer bonds as a short-term investment. Responsibility for custody of these bonds and submission of coupons for periodic interest collections probably should be delegated to the:
  - i) Chief Accountant.
  - ii) Internal Auditor.
  - iii) Cashier.
  - iv) Treasurer.
- (s) At which point in an ordinary sales transaction of a wholesaling business would a lack of specific authorization be of least concern to the auditor in the conduct of an audit?
  - i) Granting of credit.
  - ii) Shipment of goods.
  - iii) Determination of discounts.
  - iv) Selling of goods for cash.
- (t) When auditing contingent liabilities, which of the following procedures would be least effective?
  - i) Reading the minutes of the board of directors.
  - ii) Reviewing the bank confirmation letter.
  - iii) Examining customer confirmation replies.
  - iv) Examining invoices for professional services.

# AUDITING 417 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

Overall, performance on this examination was reasonable. Average grades were lowest on questions 2 and 3, and some students had considerable difficulty with question 5. A common weakness noted was a lack of knowledge as to what type of audit opinion is appropriate under various circumstances. Also, many students tended to answer questions which asked for <a href="mailto:specific">specific</a> solutions with vague (and often lengthy) generalizations. In an essay examination, organization of answers is critical.

#### Specific

- Q.1 This question was generally answered quite well. Students who lost marks often did not note the crucial role of the strength of internal controls in determining the timing of audit procedures.

  Also, some students said that interim tests consisted only of compliance (not substantive) tests (which is not true).
- Marks on this question were typically low. As noted above, students had difficulties with appropriate opinion forms. For example, many confused a denial of opinion with an adverse opinion. Also, in listing audit procedures, students often did not "focus in" on the issue, instead offering general lists of mostly irrelevant things which could be done. In a question like this, it is very important to think first and organize the answer before writing.
- Q.3 This was a rather "cut and dried" question on audit risk. Generally, students either had high marks or did very poorly. Note that audit risk models and quantification are not the same as statistical sampling. Audit risk must be faced by an auditor no matter what sampling method is used. In the current environment, I think audit risk considerations cannot be overemphasized.
- Q.4 Most students critiqued the audit report quite thoroughly and well. No common difficulties were noted.
- A number of students did poorly on this question because they simply did not know what "lapping accounts receivable" was all about. However, often those who were not clear on the nature of "lapping" still managed to do well on the required changes in internal controls in part (b) of the question. "Lapping receivables", along with "kiting cheques" are the two "classic frauds" of which every auditor should be aware.

Continued...

- Q.6 Students generally did well on the multiple choice questions. Errors observed most frequently were as follows:
  - Part (c) on test data for computer systems often answered as (iii) instead of (ii);
  - Part (g) on sampling risk often answered as (iv) instead of (ii);
  - Part (i) on statistical sampling often answered as (ii) instead of (i);
  - Part (t) on contingent liabilities often answered as (ii) instead of (iii);
  - Part (q) on management advisory services often answered as (iv) instead of (iii).

# June, 1985 SUGGESTED SOLUTIONS

Marks

Time: 3 Hours

12 0.1

- (6) (a) The six evidence gathering techniques are:
  - Inspection of documents, assets, etc.
  - Observation of processes or procedures.
  - Enquiry of knowledgeable people within and outside the organization.
  - Confirmation or written enquiry.
  - Computation in order to check arithmetic accuracy.
  - Analysis of financial statements by computing key ratios, comparing to previous periods, etc.
- (3) (b) The principal factor which determines whether or not an auditor can perform significant substantive tests at interim dates is the strength of internal control. Only when substantial reliance can be placed on internal controls is it possible to perform key substantive tests before the balance sheet date. Note that, in general, evidence is usually more persuasive for balance sheet accounts when it is obtained relatively close to the balance sheet date. Finally, the timing of procedures will be influenced by the auditor's, reporting deadline (although this should not be the overriding consideration).
- (3) (c) Besides documenting procedures performed and evidence obtained, working papers:
  - i) serve as a basis for planning future audits.
  - ii) serve as a basis for review by managers and partners.
  - iii) serve as a basis for determining the proper audit report to be issued under the circumstances.
  - iv) serve as a basis for fee billing.
  - v) serve as evidence of audit work done in defending negligence suits.

18 Q.2

(6) (a) The issue in this case is how to verify the opening inventory balance. Since this is a wholesaler, inventory is no doubt a material asset and has a material effect on 1984 net income. Physical observation is obviously not possible. The company maintains perpetual inventory records but their reliability may be in doubt since a physical inventory was not taken at the end of last year. A good way to proceed would be to compare the results of the December 31, 1984 inventory to the perpetual records and investigate those

items showing a significant difference. Also, the auditor can work backwards by examining documents supporting the acquisition (purchase invoices) and removal (sales invoices) of a sample of stock items to reconstruct opening balances. If the auditor feels sufficient appropriate evidence has been obtained as to the opening inventory using these methods, an unqualified opinion can be issued; if not, either a qualification or denial of opinion is necessary.

- (6) (b) The key issue in this case is establishing the degree of reliance the auditor can place on the internal controls surrounding the preparation of the financial statements, both within the client company and probably at the computer service bureau. In this situation, documents are no doubt being transmitted to the service bureau and processed in batches. The auditor should verify that documents transmitted are logged and control totals are taken, which are then reconciled to output received. Since this is a major application from the client's point of view, the auditor should probably also review the processing controls in place at the service bureau. Unless the controls are so poor that the auditor is compelled to rely entirely on substantive testing which might make an audit in accordance with GAAS infeasible and hence require a denial of opinion, there should be no effect on the auditor's report.
- (6) (c) First, the auditor needs to test the propriety of the overhead application rate of 300%. This involves evidence (e.g., vendor's invoices) supporting costs incurred for overhead items and consistent classification between product costs and period costs. The auditor then needs to support total direct labor dollars through examination of payrolls. Since manufacturing costs exceed selling prices in some cases, the auditor needs to establish that the inventory as a whole is valued at the lower-of-cost or market. If the auditor believes that inventories are valued in accordance with GAAP, an unqualified opinion can be issued; otherwise, a qualified or adverse opinion is required.

12 Q.3

- (2) (a) Inherent risk is the basic or underlying probability that a material error can occur in a recording process.
- (6) (b) Joint risk depends on inherent risk (IR) and:

 $\frac{\text{Control risk (CR)}}{\text{control will fail}}$  - the risk that the system of internal

Substantive risk (SR) - the risk that detailed substantive testing will fail to detect a material error.

Continued...
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Risk of other auditing procedures (ROAP) - the risk that all other substantive procedures will fail to detect a material error.

These elements are interrelated as follows:  $JR = IR \times CR \times SR \times ROAP$ 

- (4) (c) The reliability of internal controls is inherently limited because:
  - effectiveness of a system depends on the competence of people using it;
  - controls can be circumvented through employee collusion;
  - management can typically override any system;
  - a system may operate effectively for parts of a year, but not necessarily an entire year, because of such factors as employee turnover, holidays, etc.
- 14 Q.4 Deficiencies in the auditor's report are as follows:
  - 1) The report should be addressed to the shareholders.
  - 2) The scope paragraph does not specifically identify the financial statements examined nor the time period covered.
  - 3) The scope paragraph does not refer the reader to the scope limitation mentioned in paragraph 3.
  - 4) The second paragraph should be deleted. Information is adequately covered in Note 8.
  - 5) The third paragraph improperly denies an opinion on the financial statements.
  - 6) The words "subject to" should not be used to express a gualified opinion because of a scope limitation.
  - 7) The opinion paragraph does not express an opinion (qualified) as to the fairness of presentation of the financial statements in accordance with generally accepted accounting principles consistently applied.
  - 8) The financial statements and the period covered should be identified in the opinion paragraph.
  - 9) The qualification should refer to the possible effect upon numbers in the financial statements, not to the limitation itself.
  - 10) The location should be shown above the date.
  - 11) The date of the report should not be the balance sheet date, but the last day of the field work.

NOTE: 2 marks each to a maximum of 14 marks.

- 14 2.5
  - (4) (a) "Lapping" is a type of fraud which involves delaying the entry of collections on accounts receivable in order to conceal an existing cash shortage. The fraud can be perpetrated by a person who has access to cash itself and who records both the cash receipts journal and entries in the accounts receivable subsidiary ledger. After stealing the cash received from a customer, the shortage is covered by crediting the first customer with receipts from a second customer, the second with receipts from a third customer, and so on.
  - (6) (b) 1) Separate the duties of handling cash and record keeping. The accounts receivable bookkeeper should have no access to cash itself, but should credit customer accounts based on a prelisting of cash receipts or directly from remittance advices.
    - As a further precaution, the person who records the cash receipts journal should be separate from the person recording the credits to customer accounts.
    - 3) Monthly statements to customers should be prepared and mailed by an independent person, not the subsidiary ledger bookkeeper, and any exceptions investigated by the internal auditor.
  - The best procedure to detect lapping is to compare names, (4) (c) amounts, and dates shown on customer remittance advices with names, amounts and dates recorded in the cash receipts journal, customer subsidiary ledger, and duplicate deposit slips (if practicable). If, for some reason, a remittance advice is missing, the date and amount of recorded payment should be confirmed directly with the customer. Another procedure is confirmation of accounts receivable by the internal auditor with follow up on all correspondence.
- 30 Q.6 NOTE: 15 marks each.
  - (a) iv (k) iv
  - (b) iii (1) iv
  - (c) ii (m) ii
  - (d) iii (n) iii
  - (e) ii (0)
  - (f) iii (p) iv
  - (q) ii (q) iii
  - (h) iv (r) iv (i)
  - i (s) iv
  - (j) iv (t) iii

100

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END OF SOLUTIONS

Page 4 of 4

# ACCOUNTING 421 EXAMINATION December, 1984

Marks Time: 3 Hours

10 Q.1 McDonald writes, "most theories for accounting have arisen from dissatisfaction with the existing state of accounting as practiced."

# REQUIRED:

Present two kinds of dissatisfactions referred to by McDonald and give, for each, an example from Canadian practice.

18 Q.2 In Canada, we have adopted the all-inclusive concept of income and this choice has implications for the treatment of various events.

# REQUIRED:

Define and briefly describe the financial statement treatment of:

- (a) prior period adjustments,
- (b) extraordinary items,
- (c) subsequent events.

NOTE: 9 marks for definitions; 9 marks for descriptions.

16 Q.3 In the Lesson Notes, the real-world ways in which assets increase and decrease were presented.

#### REQUIRED:

List and briefly explain the ways in which assets can:

- (a) increase,
- (b) decrease.
- 16 Q.4 There has been a great deal of confusion in formulating a firm definition of liabilities. However, there are some basic characteristics of liabilities which are generally agreed upon.

#### REOUIRED:

Present the basic characteristics of liabilities which are generally agreed upon.

Page 1 of 2

15 Q.5 The FASB material on the objectives of accounting seems to have a heavy user concentration. Hendriksen, using the same user basis, organizes his discussion in his three level frame of reference.

#### REQUIRED:

Using the same user basis, discuss the objectives of accounting in Hendriksen's three level frame of reference.

15 Q.6 Accounting teachers and practitioners have not always been careful in keeping their frame of references clear when discussing long-term intercorporate investments.

#### REQUIRED:

Define the following terms, and indicate the application of each method according to the CICA Handbook.

- (a) cost method
- (b) equity method
- (c) consolidations(d) market value method
- (e) proportionate consolidation
- Q.7 Accounting for pension costs and obligations is still somewhat 10 unresolved in Canada.

# REQUIRED:

Specify and discuss the conceptual and practical problems inherent in accounting for pension liabilities.

END OF EXAMINATION

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# ACCOUNTING 421 EXAMINATION December, 1984 EXAMINER'S COUNTY IS

#### General

The main weakness in answers was that students did not heed the warning to "read the questions and answer what is asked". The other key weakness was in lack of planning and editing, resulting in repetitive and incomplete answers. Overall, the examination seemed to be fair, in that those who knew the material and used good exam techniques scored very high.

#### Specific

- Q.1 Some students presented more than two kinds of dissatisfactions but could only be credited for the first two. Others did not seem to be at all familiar with McDonald's work, which is included in the course notes. The main weakness was the presentation of examples without stating what the dissatisfactions were. For example, "foreign currency translation" was quoted, but it was not explained why the GAAP treatment caused dissatisfaction.
- Q.2 Answers were generally quite good. However, students presented lengthy examples, not asked for in this question.
  - (a) For prior period adjustments, the main error was to state that a PPA is not attributable to "an economic event". The qualifving term "subsequent" must be included.
  - (b) Many students did not distinguish an unusual event from an extraordinary event.
  - (c) Many students confused subsequent events with contingencies and few distinguished between a "type 1 or 2" event.
- Q.3 The answers to this question were generally good. The main problem was lack of familiarity with the (Lesson 4) course materials and an apparent inability by many to generalize and summarize.
- Q.4 Instead of "presenting the characteristics", many students tended to define liabilities. Another common error was to repeat the same characteristics over and over, in different words. Generally, however, the question was answered well.
- Q.5 The answers to this question, on the whole, were unsatisfactory, either because students misread the requirement or were unable to cope with the topic. The most common error was to describe at great length Hendriksen's three-level frame of reference (not required) instead of "discussing the objectives" of accounting.

Continued...

- Q.6 Students seemed well prepared to answer this question. Probably, more marks were lost for exam-writing technique than for lack of knowledge. For example, some students dwelled on certain parts of the answer to the neglect of other parts. Others defined the terms, but did not indicate the application of the method. Others may have known the subject but were unable to write an intelligible answer.
- Q.7 This question was not well answered. Many students did not address the question at all, but wrote about pension costs and expense recognition, rather than about pension liabilities. Few students made the connection back to the answer to Q.4 and examined the most interesting problem of whether a liability exists, given the characteristics of a liability.

#### CERTIFIED MALL ACCOUNTANTS' ASSOCIATION OF MANAGEMENT

# ACCOUNTING 421 EMAINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 10 Q.1 Source: Appendix 1 to Lesson 1. McDonald lists three kinds of dissatisfactions, with examples:
  - failure to recognize new changes in the environment, e.g., changing price levels;
  - apparent logical inconsistencies, e.g., use of the lower of cost or market for inventories; accounting for R & D or leases; the conservatism concept, etc.
  - iii) final outcomes violate intuitive economic common sense, e.g., where a closed-end mutual fund reports no income for a securities portfolio which has risen in value; foreign currency translation, etc.

Other kinds of dissatisfactions could be presented, such as concern over alternative treatments which can be arbitrarily chosen (e.g., different depreciation calculation methods) or slowness of change (e.g., inflation accounting, pension accounting foreign exchange translation). Dissatisfactions by investors and regulatory authorities (discussed in Hendriksen) tend to result in theories of accounting.

MARKS: 3 marks for the reason and 2 marks for the example; maximum of 3 marks for non-McDonald items; such as arbitrary allocations; problems with historical cost accounting, etc.

18 0.2 This is summarized in Lesson 3 (Section 2).

The references are Handbook sections cited below.

- (3) (a) Prior period adjustments are entries made to cover gains or losses which relate to the income of prior periods. Specifically (per 3600.03) they have all four of the following characteristics:
  - identified and related to prior period business;
  - not attributable to events occurring subsequent to the prior period;
  - result from decisions outside owners or management;
  - could not be reasonably estimated prior to the above decisions.

Continued...
Page 1 of 5

- Treatment (3600.06 to .08) is to exclude from current net income determination (i.e., the income statement), to restate comparative prior period statements, and disclose details in notes to the financial statements. As pointed out in the Lesson Notes, the prior period adjustment is an adjustment to the opening balance in the Retained Earnings Statement of the period when the event is determined and recognized.
- (3) (b) Extraordinary items are gains or losses which are atypical, unexpected, irregular and expected to be non-recurring in the operations of the company (3480.05). Note that unusual items (with respect to size and circumstances) resulting from normal business activities are excluded (by 3480.11,.12) from extraordinary items.
- (3) Treatment (3480.09) is to distinguish (net of income tax) and describe in the income statement each material extraordinary item.
- (3) (c) Subsequent events are events which occur after the financial statement but (of course) prior to the date of issue. They are of two types:
  - those which provide evidence about conditions which existed at the financial statement date, and
  - ii) those which are new and were unforeseen at the financial statement date.

Subsequent events are defined in Lesson 3 (Section 2) and in 3820.01 to .03.

- (3) Treatment depends on the type of event. Type (i) events require adjustment of the financial statements (3820.06). Type (ii) events do not require adjustment of the statements, but footnote disclosure (3820.10) or, should the event have a "pervasive" effect on future activities, the issue of supplementary pro forma information (3820.13).
- 16 Q.3 Lesson 4, Section 1 contains a summary as follows:
  - (a) Asset increases:
    - by purchase, an exchange transaction in which other assets decrease or liabilities increase;
    - by combining factors of production, such that finished goods are worth more than the sum of the input factors (increase probably not recognized until sale);

Continued...

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- by discovery, fortuitously or as a result of costly exploration (again, recognition of the increase may be deferred);
- by exchange or sale of goods and services; such that selling price exceeds cost;
- by upward price shifts in assets held by a firm (again, recognition is generally deferred until sale of the asset).

# (b) Asset decreases:

- by exchange or sale of goods, resulting in the giving up of an asset (also, the receipt of a new asset, as indicated in (a)).
- by downward price shifts in assets held (when price shifts down, the decrease is generally recognized).
- by internal consumption, for later recapture as in (a), or for lost time and idle capacity.
- by involuntary deprival, through loss, theft, government intervention, technological change, obsolescence or acts of God.

MARKS: 2 marks for the identification and explanation of any of the above items to a maximum of 16. Partial marks awarded for the listing of specific examples only.

- 16 Q.4 The basic characteristics of liabilities are in the Lesson 5 section of the Course Guide (p. 37) and are summarized in Hendriksen, pp. 421-422.
  - The obligation must exist at the present time, i.e., must arise out of some past transaction or event, not be contingent on some future event.
  - Equitable obligations, based on normal business practice or relationships, are included.
  - There is little or no discretion to avoid the future sacrifice, i.e., the sacrifice is probable, if not certain.
  - There is a determinable (or reasonably estimated) maturity or payment date, although extension or conversion is possible.
  - The payee is known, or will be by the settlement date.

MARKS: Up to 4 marks each for any of the above five characteristics to a maximum of 16. Half marks for stating "amount known or certain" or "not a liability if offset is possible".

- 15 Q.5 This topic is referenced in Lesson 6 (Section 3) and covered in Hendriksen, pp. 66-71.
  - (5) Syntactical level: It is assumed that financial statements are prepared for an unknown set of users who have multiple objectives. Accordingly, the objective of the accounting process and reports is to provide information for decision making by these varied, outside parties. The focus is on the calculation of net income using GAAP, with emphasis on data collection and report formats. In effect, there is little or no consideration of decision relevance.
  - (5) Semantic level: The syntactical assumption of the provision of information to varied, unknown users is carried to this level. The focus is on the measurement and reporting of changes in wealth, with emphasis on objects and events which have real world referents. Because users are varied and unknown, there is an argument to include as much information as possible in the expectation that some of the information will be decision relevant to some users.
  - (5) Behavioral level: The emphasis is on the needs of users (share-holders, investors, creditors) of financial statements. The objective is to supply predictive indicators which the users will find useful in the context of known or presumed decision models. The goal is clearly decision relevance, but the problem is to know what information is required and how the different information needs of different decision-makers can be satisfied.
- 15 Q.6 These items are all covered in Lessons 8 and 9 (and specifically in Lesson 8 (Section 2)).
  - (3) (a) The cost method is a method of accounting by the investor for long-term investments. The investment is carried at cost, unless it must be reduced by dividends in excess of the investors' pro rata share or by a reduction in the market value of the shares (3050.03). The cost method is appropriate for portfolio investments (3050.26).
  - (3) (b) The equity method is the alternative (to cost) method of accounting by the investor for long-term investments. The investment is initially recorded at cost, then adjusted for the pro rata share of earnings, dividends, capital transactions, and prior period adjustments. Also, acquisition differentials must be amortized against the investment account (3050.03). The equity method is appropriate when the investor is able to exercise significant influence (3050.21), subject to exclusions (3050.23).

Continued...

- (3) (c) Consolidations are a type of financial reporting whereby the investor and investee companies are recognized as a single economic group. Consolidated statements are prepared by aggregating the separate financial statements, subject to eliminations and procedures according to the provisions in Handbook Section 1600, and are appropriate for reporting by parents who have subsidiaries.
- (3) (d) The market value method is a measurement method for accounting, whereby market (entry) values are used to report on items (chiefly assets), rather than historical cost values. The method impounds both specific and general price changes and is applicable in Canada only as a limited kind of supplementary information. Concentration on investments is appropriate, given the context of the question.
- (3) (e) Proportionate consolidation is a method of reporting, whereby the venturer's pro rata share of a joint venture is aggregated with the venture's accounts, subject to the procedures of Handbook Section 3055. It is applicable where the joint venture is a significant portion of the venturer's activities (3055.11).
- 10 Q.7 Problems with pension liabilities are set out in Lesson 10 (Section 2) as follows.
  - (4) Conceptual problem

Is an immediate liability created when a plan is initiated (or modified), since no tangible asset is acquired and payment is uncertain, both as to timing and amount?

#### Practical problems

- (4) Identifying the amount of the (at least) four different kinds of cost:
  - i) current service costs;
  - ii) past service costs;
  - iii) experience deficiencies (surpluses);
  - iv) adjustments due to changes in actuarial assumptions.
- (2) Identification of the off-setting benefit (or asset or expense) for the liability; i.e., what is the debit?
- (2) Financial statement presentation problems.

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OF SOLUTIONS

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# ACCOUNTING 421 EXAMINATION March, 1985

Marks Time: 3 Hours

12 Q.1 In the readings for this course, various modifiers are used in conjunction with the word "theory".

#### REQUIRED:

Define the following terms as they are used in Accounting 421:

- (a) Normative
- (b) Descriptive
- (c) Inductive
- (d) Deductive
- 10 Q.2 It is possible to use current value concepts without simultaneously adjusting for general inflation or deflation.

#### REQUIRED:

In the above instance, what is the effect on the determination of general inflation or deflation gains or losses in relation to:

- (a) monetary items?
- (b) non-monetary items?
- 12 Q.3 In writing about what should be included in expenses, Hendriksen and the Lesson Notes tend to dwell on what should be excluded from expenses.

# REQUIRED:

List what "unfavorable changes incurred" should be excluded from expenses and explain your reasoning.

16 Q.4 Depreciation and its calculation is a subject of controversy in and outside the accounting profession.

#### REQUIRED:

- (4) (a) Define GAAP depreciation.
- (12) (b) List three different patterns of the depreciation charges to income and explain when each pattern is applicable.

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10 Q.5 While both countries follow similar exposure draft procedures there are some important differences in the accounting standards setting environment in Canada and the United States.

# REQUIRED:

List and briefly describe the major differences between the Canadian and the United States accounting standards setting environments and institutions.

20 Q.6 Some people argue that accounting for the not-for-profit sector should be the same as accounting for the profit sector.

## REQUIRED:

Present arguments for  $\underline{\text{and}}$  against the proposition that accounting should be the same in  $\underline{\text{pro}}$  fit and not-for-profit organizations.

20 Q.7 Fraser identifies three theories of ownership equity.

### REQUIRED:

Describe Fraser's <u>three</u> theories of ownership equity and point out how they are applied in Canadian practice for accounting for intercorporate investments and consolidated reporting.

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EWD OF EXAMINATION

# ACCOUNTING 421 March, 1985 EXAMINER'S COMMENTS

#### General

The examination was similar in form and content to previous ones for this course. Time did not appear to be a constraint, so that most students had ample time available for consideration, planning and presentation of answers. Performance by many supplementalists was not good. Many responses did not address question requirements or lacked planning or editing. Students who failed this examination displayed a distinct lack of knowledge in key areas of the course.

#### Specific

- Q.1 This question was well-answered by most students. Some students related inductive and deductive theories more specifically to accounting than the solutions, and this was a reasonable approach. Some students provided examples and this, while unnecessary, was not a problem for markers.
- Q.2 Many students had no problems with this question; approximately 50% received a passing mark and almost 20% received a perfect 10 marks. Students who did poorly either did not understand the concept or did not respond to the question requirements. Few marks could be given for simply describing the effect of not adjusting for purchasing power gains or losses on monetary items.
- Q.3 Few students seemed to be aware of Hendriksen's discussion or the Lesson 3, Section 4 Lesson Notes. Consequently, performance was very poor. Many students attempted answers by referring to items not discussed by Hendriksen and marks were awarded for reasonable efforts. Many students did not realize that charges which are capitalized or deferred and (later) amortized are still expensed. Also, no marks could be awarded for specifying subsequent events (still expensed) or contingencies.
- Q.4 The majority of students seemed to be unfamiliar with Hendriksen or the Lesson 4, Section 3 Lesson Notes. Rather than listing three different patterns and explaining where they are appropriate, many students named specific depreciation methods and then described the calculation of the methods. Marks could sometimes be awarded for method names which described a pattern, but no marks could be awarded for irrelevant descriptions of calculation methods. In general, the definition part was well done.

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- Q.5 This question was very poorly answered by most students; either because they were unfamiliar with the lesson notes and course guide or because they did not respond to the question requirements. A majority of students discussed standards setting procedures and institutions rather than describing differences. A surprising number of students chose to discuss similarities rather than differences.
- Q.6 With some reasonable effort, this should have been an easy 20 marks. Four marks were assigned for each argument given. Apparent lack of planning and effort resulted in:
  - presentation of too few arguments, for and against;
  - repetition of the same arguments;
  - incomplete arguments, e.g., "should be the same because both have assets", or, "should be different because of different accounting methods".

Many students presented long, irrelevant descriptions of fund accounting, budgetary control on government depreciation methods.

Q.7 This question was well-answered by many students and full marks were not uncommon. The major reason for loss of marks was that students did not answer the second part of the question requirement; i.e., students would describe the theories but not point out their application in Canadian practice.

# ACCOUNTING 421 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 Q.1 The terms are covered in the Lesson 1 readings by Hendriksen & McDonald and, most succinctly, in Spector's Course Guide.

- (3) (a) Normative theories are those that attempt to state what ought to be, rather than what is. They are prescriptive in nature, in that they try to prescribe how accounting SHOULD be done, not how it IS done. McDonald calls them theories for accounting.
- (3) (b) Descriptive theories are those that tell us HOW we are presently doing something. They do not attempt to "preach"; they merely state the "obvious", and describe HOW things ARE being done. These theories are theories OF accounting, because they tell us how accounting is presently being done, without reference to some "ought to be" context.
- (3) (c) Inductive theories are those that start with a sample, and draw generalized conclusions from detailed observations and measurements. This approach is the opposite to the deductive approach: we are drawing generalized conclusions from data points chosen by the experimenter.
- (3) (d) <u>Deductive</u> theories are those that start with a statement of objectives and postulates, then derive logical principles from these objectives and postulates, to form a basis for practical applications. In essence the process runs from the abstract to the concrete.
- 10  $Q_{\star}2$  This answer comes from the materials in Lesson 2; specifically, Section 4 of the Lesson Notes.
  - (5) (a) For monetary items, general inflation gains or deflation losses are not ascertained with the use of current value techniques.
  - (5) (b) Eventual gains or losses on non-monetary items may consist of both a real gain or loss and a general inflation or deflation portion. The use of current value techniques will reveal the gain or loss on the non-monetary items, but will not distinguish the real and the inflationary components of the gain or loss.

- 12 Q.3 Hendriksen (pp. 188 to 189) lists three kinds of changes:
  - (4) "losses", asset expirations or deductions not related to providing goods or services to customers.

Reasoning: If not incurred in the process of earning revenue, the cost cannot be matched against revenues.

(4) - "offsets" or valuations of revenues, such as sales returns, sales discounts (or even bad debts, according to Hendriksen).

Reasoning: Returns are a reduction in goods sold; discounts, a reduction in the selling price (and bad debts, in the amounts received for the product).

(4) - "capital transactions", including the sale or redemption of shares, expenses and discounts in connection with share issues, and dividends.

Reasoning: The amounts and related expenses for share and dividend transactions are changes to the equity and not expenses.

See also Lesson 3, Section 4.

- NOTE: Part marks were awarded for some "unfavorable changes" mentioned by students, but not by Hendriksen:
  - foreign exchange translation losses under Handbook 1650.36;
  - extraordinary items;
  - prior period adjustments;
  - the income tax controversy;
  - purchasing power losses.
- 16 Q.4
  - (4) (a) Hendriksen (p. 369) presents the most common definition as, "A systematic and rational method of allocating costs to periods in which the benefits are derived" and points to the AICPA's Concepts Statement No. 3 which changes the last six words to "... in which the assets are assumed to be used". (NOTE: A zero mark should be awarded to anyone who suggests that depreciation is for replacement of the asset.)
  - (12) (b) This is from pp. 395 to 396, as referenced in Lesson 4, Section 3.

#### Variable charge methods:

- when the asset value declines as a function of use, rather than time;
- when obsolescence is not an important factor;
- when maintenance expenses are proportional to use.

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#### Fixed charge (straight-line) methods:

- when the future benefits decline as a function of time, rather than use;
- when revenues, maintenance expenses and efficiency are relatively constant over the asset life;
- when the interest factor can be ignored or considered to be offset by other factors.

#### Increasing charge methods:

- when cash or revenue contribution is constant, but asset value each year is to represent the discounted value of remaining contributions;
- when maintenance expense is constant, or increasing over the asset life;
- when revenues and efficiency are constant or increasing over the asset life.

# Decreasing charge methods:

- when maintenance expenses increase over asset life;
- when efficiency and revenues decrease over asset life;
- when future revenues are uncertain (e.g., danger of obsolescence);
- when the interest factor is to be recognized only when realized through use of the asset.

MARKS: Up to 4 marks per method, to a maximum of 12 marks.

Marks were not deducted for ignoring the interest factor.

- 10 Q.5 This is discussed in Lesson 6, Section 2 and the related readings and, most succinctly, in the <u>Course Guide</u> (pp. 45 to 46) as follows:
  - (4) The weight of authority granted to recommendations differ. Canadian standards have <u>de facto</u> legislative authority (through Corporations Acts), while in the United States, the SEC may overrule (or act independently of) FASB.
  - (2) There is more public input into United States pronouncements, via discussion, memoranda, hearings, etc.
  - (2) The FASB is an independent body, whereas in Canada the AcSC is CICA dominated. The Canadian scene is complicated by the establishment of ASAC (Accounting Standard Authority of Canada), but ASAC is not referenced in the 1984 Lesson Notes.

- (2) FASB has completed significant work on a conceptual frame of reference for accounting standards, whereas no comparable work has been done in Canada.
- (1) In the U.S., the SEC is federal; whereas, in Canada, the securities commissions are provincial.
- 20 Q.6 This issue is covered in Lesson 7, Section 2 and related readings.

#### Arguments for:

- FASB No. 4 concluded that it was unnecessary to develop a separate conceptual framework for non-business organizations.
- The dual objectives of stewardship and accountability exist in both types of organizations (see Course Guide, p. 53).
- Many characteristics of not-for-profit organizations are common or analogous to profit organizations.

# Arguments against:

- The notes quote Robinson on the uniqueness of the goals and programs of not-for-profit organizations (e.g., churches).
- Faulkner points to the duality of objectives and indicates that forcing financial reporting into a mold means that neither set of goals is serviced.
- Profit sector reports are for shareholders, but there is often no analogous capital investment in not-for-profit organizations.
- Profit sector organizations are measured against the profit yardstick but there is no comparable measure of efficiency for not-for-profit organizations.
- Expense v. expenditures; matching concept of profit organizations v. cash outlay concept of not-for-profit sector. The two are incompatable.

Up to 4 marks per valid point, to the maximum of 20 marks.

- Q.7 This is covered in Lesson 8 (Section 1), Lesson 9 (Section 1), the Course Guide (p. 59) and Fraser (pp. 20 and 29).
  - (3) The proprietary theory according to Fraser takes the narrow, proprietor's (or shareholders') view. It can be said that consolidations are strictly for the majority and minority interests are ignored. On the other hand, it can be said that consolidation is inconsistent with the proprietary theory.

Continued...
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- (3) Application: The proprietary theory is not used in Canadian consolidation except in joint venture proportional consolidation. (It is implied, according to Hendriksen, in the equity method of accounting for investments, where the parent's share of gains and losses is taken up. However, this point is not a requirement of the question.)
- (3) The parent theory takes the view of the parent, which owns not only its own assets, but those of its subsidiaries (subject to a minority interest, separately calculated). Consolidation is still for the majority and the minority interest is considered an outsider. Fraser says that the parent theory is a modified proprietary theory.
- (4) Application: The parent theory is used in consolidations for initial, acquisition-date differentials. (Alternately, the details from Fraser, pp. 29-30 could be presented.)
- (3) The entity theory takes the view of the economic entity and this view is fundamental to consolidated reporting. The minority interest is considered one class of owner's equity.
- (4) Application: The entity theory is used in consolidated reporting for post acquisition-date dealings. (Alternately, the details from Fraser, pp. 29-30 could be presented.)

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END OF SOLUTIONS

## ADVANCED TAX 509 EXAMINATION December, 1984

Marks

Time: 3 Hours

#### NOTE:

- 1. This examination is based on the law as it stood on July 01, 1983.
- 2. To obtain full marks to a question, you should reference your answers to the applicable provision(s) in the *Income Tax Act*. If a reference to one or more sections in the main body of the *Act* and to the ITAR provisions is required, the applicable reference should be given with the relevant part of your solution.
- 3. Round all calculations to the nearest dollar.
- 20 Q.1 The following information pertains to Beta Ltd., a resident corporation, all of the shares of which are owned by Mr. Green, also a Canadian resident:

1982

Net interest income \$100,000
Taxable dividends from nonconnected Canadian corporations 8,000

In 1982 Beta Ltd. paid a dividend equal to the amount of its net income after tax *plus* any dividend refunds for which it was eligible. In the same year Mr. Green's business income from other sources exactly equalled his personal exemptions and the standard deductions.

Mr. Green resides in a province that levies corporate tax at a rate of 14%, and individual tax at a rate of 47% of Federal tax.

# REQUIRED:

Calculate the *total* amount of cash retained in 1982 by Beta Ltd. and Mr. Green as a consequence of the above transactions; compare this amount with the cash retained had Mr. Green received the interest and dividend income personally. (Ignore the federal tax reductions, any surtaxes, and the investment income exemption.) Show all calculations.

Q.2 White Ltd., a Canadian-controlled private corporation, was incorporated on January 1, 1983; the corporation has a December 31 year-end. The following information pertains to its operations:

	1983
Active business income (Canadian)	\$80,000
Canadian investment income:	
<ul><li>interest</li></ul>	50,000
<ul> <li>capital gains</li> </ul>	20,000
Foreign investment income from foreign	
non-affiliated corporation	40,000
(withholding tax $-$ \$6,000)	
Foreign business income from branch operation	55,000
(foreign income tax — \$20,000)	

#### **REQUIRED:**

- (15) (a) Calculate the net federal tax payable by White Ltd. in 1983. Show all calculations.
- (12) (b) Calculate White Ltd.'s RDTOH as at the end of 1983. Show all calculations.
- Q.3 C Ltd., a resident Canadian corporation, owns all of the issued and outstanding shares of FA Ltd., a corporation resident and carrying on business in Europe. For its year ended December 1982, FA Ltd. had foreign accrual property income of \$100,000, on which it paid foreign income tax of \$30,000.

On January 31, 1983, FA Ltd. paid a dividend of \$35,000; foreign tax of 10% was withheld on the dividend. FA Ltd. does not have any exempt surplus, its taxable surplus is \$70,000.

#### REQUIRED:

Assuming that C Ltd. does not make any elections, calculate the income tax consequences of the above transactions to C Ltd. in each of the years 1982 and 1983. (Ignore all adjustments to the cost base of shareholdings.)

18 Q.4 F Ltd. has issued and outstanding, 1,000 Class A shares to which the following data apply:

Class	Cost base (per share)	Fair market value (per share)
Α	\$25	\$50

The shares are all owned by Mr. F.

In 1983, in the course of reorganizing the capital of F Ltd., Mr. F relinquished his Class A shares in exchange for \$10,000 in cash and 1,000 new Class B (non-voting) shares with a fair market value of \$30,000. This exchange does not modify the paid-up capital of the shares. F Ltd. also issued 1,000 Class C voting shares to Mr. F's son (age 21) for no consideration.

#### REQUIRED:

Calculate the income tax consequences of the above transactions to Mr. F.

15 Q.5 Mr. A owns the following shares in B Ltd., (acquired in 1980), a taxable Canadian corporation:

	Common	Preferred
Number of shares held	1,000	10,000
Adjusted cost base — per share	\$ 6	\$ 10
Fair market value — total	\$ 50,000	\$100,000

In 1983 B Ltd. amalgamated with C Ltd. (also a taxable Canadian corporation) to form BC Ltd. Upon the amalgamation Mr. A received from BC Ltd.:

1) For his common shares,

1,000 new common shares having a fair market value of \$ 10,000

4,000 new \$10 Class A preferred shares having a fair market value of \$40,000

2) For his preferred shares,

10,000 new \$10 Class B preferred shares having a fair market value of \$100,000

The paid-up capital of the shares was not increased as a result of the amalgamation.

In December 1983 BC Ltd. redeemed one-half of Mr. A's Class A preferred shares for \$12 per share.

### REQUIRED:

Calculate the income tax consequences of the above transactions to Mr. A in 1983.

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**END OF EXAMINATION** 

# ADVANCED TAX 509 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

The examination was generally well answered, although it was evident that some students did not allocate their time wisely between questions.

#### Specific

- Q.1 Some students omitted the calculation of the refund on the RDTOH of 25% x \$74,667.
- Q.2 Part (a) was usually well answered. Students had difficulty with the calculation of RDTOH.
- Q.3 & While there were many individual difficulties, there were no Q.4 problems of a general nature.
- Q.5 Many students did not see the deemed dividend under Subsection 84(3) and the capital gain of \$17,600.

# ADVANCED TAX 509 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

20	Q.1	A.	Tax	paid	if	earned	through	corporation
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1.	Tax paid by corporation			
	_		#100 000	Refundable Tax
	Interest income		\$100,000	
	Dividend income		8,000	
	I iton componete dividende		\$108,000 (8,000)	
	Less: inter-corporate dividends		\$100,000	
	Taxable income		\$100,000	
	Part I tax plus provincial			
	at 50%		(50,000)	\$16,667
	Part IV tax on dividends			
	at 25%		(2,000)	2,000
	Cash available		\$ 56,000	
	(\$48,000 + \$8,000)			
	Refund on dividend		18,667	(18,667)
	$(25\% \times \$74,667)$			
	61.11		\$ 74,667	
	Dividend paid		(74,667)	NIII
	Cash available		NIL	NIL
2.	Tax paid by individual shareholder  Dividend received Gross-up by 50% Included in income  Tax thereon (rounded)		\$ 74,667 37,333 \$112,000	
	1000			
	Federal tax	\$33,165		
	DTC (68% × \$37,333)	(25,386)	\$ 7,779	
	Provincial tax at 47%		3,656	
	Total tax payable			\$11,435
3.	Cash retention			
	By shareholder (\$74,667 — \$11,435) By corporation			\$63,232 NIL \$63,232
	Total			

Continued . . .

# B. Tax paid if earned by individual directly

	Interest income	\$100,000	
	Dividend income	8,000	
	Gross-up of dividends	4,000	
			\$112,000
	Tax thereon (rounded)		
	Federal tax \$33,165		
	DTC $(68\% \times \$4,000)$ (2,720)		
			\$30,445
	Provincial tax at 47%		14,309
	Total tax payable		\$44,754
	Cash retained		
	(\$108,000 - \$44,754)		\$63,246
	C. Total tax paid by corporation and shareholder	Α	В
	Part I tax	\$ 50,000	
	Part IV tax	2,000	
		\$ 52,000	
	Tax refunded	(18,667)	
	Paid by corporation	\$ 33,333	
	Paid by individual	11,435	44,754
	Total	\$ 44,768	44,754
2			
)	(a) Calculation of federal tax payable		
	Taxable income	\$235,000	
	Tax thereon:		
	Federal tax at 46%	\$108,100	
	Provincial abatement	(23,500)*	
	at 1070		
	Small business deduction	\$ 84,600 **	
	(21% × \$80,000)	(16,800)	
	Foreign non-business income	(10,000)	
	tax credit (Note 1)	(6,000)	
	Foreign business income	(0,000)	
	tax credit (Note 2)	(20,000)	
	Net federal tax payable	\$ 41,800	
	·		

<sup>\*</sup> Students who use a different allocation (as a result of assumptions made as to where income is earned) will still receive full marks provided the assumptions are properly followed through.

Continued...

27

# (12) (b) RDTOH equals 2/3 of the least of:

- i) 25% of (A) Canadian investment income of \$60,000, plus
  (B) Foreign investment income of \$40,000, that is: \$25,000.
- ii) (A) 25% of Canadian investment income (\$15,000), plus
  (B) 40% of foreign investment income (\$16,000) less deductions allowed by subsection 126(1) (\$6,000), that is: \$25,000.
- iii) 25% of the amount by which the corporation's taxable income (\$235,000) exceeds the aggregate of

(A) 4 times the small business deduction (\$67,200), plus

- (B) 10/4 of deduction allowed by subsection 126(1) (\$15,000), plus
- (C) twice the deduction allowed by subsection 126(2) (\$40,000), that is, 25% of \$112,800, or \$28,200.
- iv) tax otherwise payable (\$41,800).

The refundable dividend tax for the year is 2/3 of \$25,000, or \$16,666.

# Note 1 [subsection 126(1)]

lesser of: (a) tax paid	\$ 6,000	
(b) <u>40,000</u> × \$84,600 ** 235,000 lesser amount	14,400	\$ 6,000
Note 2 [subsection 126(2)] least of: (a) tax paid	\$20,000	
(b) <u>55,000</u> × \$108,100 <u>235,000</u> (c) \$108,100 - \$6,000 least amount	25,300 102,100	\$20,000

	\$100,000
	\$100,000
	65,217
	\$ 34,783
	\$ 35,000
	(17,608)
	17,392
	(7.600)
	(7,608)
	9,784
\$34.783	
\$17,392	
	(17,392)
	\$ (7,608)
	<u> </u>
\$30,000	
\$10,000	
10,000	
\$20,000	
\$50,000	
\$20,000	
\$20,000	
NIL	
	10,000 \$20,000 \$50,000 \$20,000 \$20,000 \$25,000

18

Q.4

Adjusted cost base  Capital gain (loss)  2) Proceeds of disposition (Preferred shares) Adjusted cost base Capital gain (loss)  \$100, Capital gain (loss)  \$\frac{1}{8} \text{N}\$  3) Adjusted cost base of new shares:  (a) Common shares  10,000	
Gift portion (\$50,000 $-$ \$40,000) \$10,000  Deemed cost base \$	
Deemed cost base	
1) Proceeds of disposition (Common shares)  Adjusted cost base  Capital gain (loss)  2) Proceeds of disposition (Preferred shares)  Adjusted cost base  Capital gain (loss)  3) Adjusted cost base of new shares:  (a) Common shares  10,000 × \$106,000 = \$7,  (b) Class A Preferred shares  40,000 × \$106,000 = \$28,	
Adjusted cost base  Capital gain (loss)  2) Proceeds of disposition (Preferred shares)  Adjusted cost base Capital gain (loss)  3) Adjusted cost base of new shares: (a) Common shares $ \frac{10,000}{150,000} \times \$106,000 = \$7, $ (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 = \$28, $	
Capital gain (loss)  2) Proceeds of disposition (Preferred shares)  Adjusted cost base  Capital gain (loss)  3) Adjusted cost base of new shares:  (a) Common shares $ \frac{10,000}{150,000} \times \$106,000 = \$7, $ (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 = \$28, $	000
Adjusted cost base Capital gain (loss)  3) Adjusted cost base of new shares: (a) Common shares $ \frac{10,000}{150,000} \times \$106,000 = \$7, $ (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 = \$28, $	000) IL
Adjusted cost base Capital gain (loss)  3) Adjusted cost base of new shares: (a) Common shares $ \frac{10,000}{150,000} \times \$106,000 = \$7, $ (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 = \$28, $	000
3) Adjusted cost base of new shares:  (a) Common shares $ \frac{10,000}{150,000} \times \$106,000 $ = \$ 7,  (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 $ = \$ 28,	000)
(a) Common shares $ \frac{10,000}{150,000} \times \$106,000 = \$7, $ (b) Class A Preferred shares $ \frac{40,000}{150,000} \times \$106,000 = \$28, $	IL
(b) Class A Preferred shares $ \frac{40,000}{40,000} \times \$106,000 = \$28, $	
$\frac{40,000}{}$ × \$106,000 = \$28,	067
	267
(c) Class B Preferred shares	
$\frac{100,000}{150,000} \times \$106,000 = \$70,$	666
\$106.	000
4) Redemption of Class A Preferred shares  Redemption price (2,000 × \$12) \$ 24,	000
Redemption price $(2,000 \times \$12)$ \$ 24, Paid-up capital $(2,000 \times \$10)$ \$ 20.	
Deemed dividend subsection 84(3) \$ 4.	000
Redemption price \$ 24.	
	000)
Proceeds of disposition $$20$ , Adjusted cost base $(1/2 \times \$28, 267)$ $(14,$	
	866

**Note:** It is arguable that the allocation under paragraph 87(4)(b), which uses the proceeds of disposition calculated in paragraph 87(4)(a) in the numerator of the ratio, should be on a class-by-class basis to accord with the proceeds of disposition in parts (1) and (2) above. For the purposes of the examination either solution was acceptable.

## ADVANCED TAX 509 EXAMINATION March, 1985

Marks Time: 3 Hours

#### NOTE:

- 1. This examination is based on the law as it stood on January 19, 1984.
- 2. To obtain full marks to a question, you should reference your answers to the applicable provision(s) in the *Income Tax Act*. If a reference to one or more sections in the main body of the *Act* and to the ITAR provisions is required, the applicable reference should be given with the relevant part of your solution.
- 3. Round all calculations to the nearest dollar.
- Q.1 Alpha Ltd. and Beta Ltd., both non-resident corporations, are wholly-owned subsidiaries of Gamma Ltd., which is also a non-resident corporation.

Alpha Ltd. owns 20% and Beta Ltd. owns 10% of the issued and outstanding Class A shares of Omega Ltd., a corporation resident in Canada.

A portion of the balance sheet of Omega Ltd. as at January 1, 1984 appears as follows:

Paid-up capital of
Class A shares issued and outstanding
Paid-up capital of Class B shares\*
Retained earnings

\$100,000
30,000
20,000
\$150,000

In 1984, Omega Ltd. owed \$500,000 to Alpha Ltd.; the loan was outstanding all year at an interest rate of 10%. From January 1, 1984 to June 30, 1984, Omega Ltd. also owed Beta Ltd. \$100,000; the loan carried interest at a rate of 12%. Both loans were incurred for business purposes.

#### REQUIRED:

Calculate the amount of interest expense deductible by *Omega Ltd.* in 1984. Show *all* calculations.

<sup>\*</sup>Owned by unrelated third parties.

20 Q.2 Sowns all of the issued and outstanding shares of S Ltd. The following data apply to his shares:

Number of shares	100
Total fair market value	\$ 50,000
Total adjusted cost base	\$100,000

On December 31, 1984, S Ltd. amalgamates with P Ltd., a corporation wholly-owned by his daughter, to form SP Ltd. In exchange for his shares in S Ltd., S receives Class B shares of SP Ltd. that have a fair market value of \$20,000.

On March 1, 1985, S dies and leaves his Class B shares in SP Ltd. to his daughter. The fair market value of the shares as at the date of his death is \$40,000.

#### REQUIRED:

Assuming that the amalgamation satisfies the requirements of Subsection 87(1), calculate the income tax consequences of the above events and transactions to S and his estate. Show *all* calculations.

- Q.3 On January 1, 1980, P Ltd. purchased all of the issued and outstanding shares of S Ltd. for \$1,000,000; the shares have a paid-up capital of \$1,500,000.
  - S. Ltd. was wound-up on December 31, 1984 and its assets, which are listed below, were distributed to P Ltd.

	Fair Market Value			
Assets	January 1, 1980	December 31, 198		
Cash	\$ 20,000	\$ 50,000		
Securities (ACB - \$150,000)	150,000	175,000		
Inventory	100,000	100,000		
Machinery (UCC - \$50,000)	250,000	200,000		
Buildings (UCC - \$100,000)	200,000	275,000		
Land (ACB - \$100,000)	300,000	600,000		
Liabilities				
Debt	\$ 20,000	\$150,000		

S Ltd. did not acquire or dispose of any fixed assets or securities between 1980 and 1985.

#### REQUIRED:

Calculate the capital gain (loss) to P Ltd. on the cancellation of its shares in S Ltd. Show all calculations.

Q.4 Messrs. Black, Brown and White, all residents of Canada, entered into partnership on January 1, 1985. As his contribution of capital, Mr. Black conveyed the following properties to the partnership:

	Original Cost	Fair Market Value	Tax Value
Land	\$20,000	\$60,000	\$20,000
Building	60,000	45,000	40,000
Inventory	1,000	4,000	1,000

The three partners jointly elected transfer values, in prescribed form (T2059) and within the prescribed time limits, that would defer recognition of all capital gains, income, and recapture of capital cost allowance. Mr. Black received the following consideration from the partnership:

### Fair Market Value

Promissory	note	\$40,000
Partnership	interest	69,000

On December 31, 1985, the partnership sold the building for \$50,000.

## REQUIRED:

- (6) (a) Determine the amount agreed upon by the partners in their joint election.
- (7) (b) Calculate the cost of Mr. Black's partnership interest.
- (7) (c) Calculate the tax consequences of the sale of the building by the partnership.
- Q.5 In each of the following four cases, Mr. Blue, a Canadian resident, transfers 60% of the shares of Opco Ltd. to Holdco Ltd., and in each case the transfer value is set at \$1,000 under Section 85. The following data applies to Mr. Blue's shares in Opco Ltd.:

Paid-up capital	\$	100
Valuation Day value (ACB)	1	,000
Fair market value	1	.500

Mr. Blue acquired his shares in Opco Ltd. when the corporation was incorporated under the Ontario Business Corporations Act in 1970. Assume that the following consideration is received from Holdco Ltd.:

	Case 1	Case 2	Case 3	Case 4
Cash	\$1,000	_	_	\$ 500
Debt	-	*******	\$ 750	\$ 500
Shares (PUC)	500	\$1,500	750	500
Total	\$1,500	\$1,500	\$1,500	\$1,500

### REQUIRED:

For each of the four cases calculate the income tax consequences resulting from the transactions described. Show *all* calculations.

20

# ADVALUATION March, 1985 EXAMINER'S

#### General.

The examination was generally very well answered except for parts of questions 1 and 5.

#### Specific

- Q.1 Considerable difficulty was encountered in calculating the nondeductible portion. Most identified the problem and the relevant section to be applied.
- Q.2 Very well answered.
- Q.3 Generally well answered. Many students had difficulty with calculating the net tax values of assets. Some students did not show their calculations as required to do so in the question.
- Q.4 Well answered no particular problems.
- Q.5 Students had difficulty identifying Section 84.1 even though question clearly stated that Opco's shares were pre-1972.

# ADVANCED TAX 509 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

Q.1 Alpha Ltd. and Beta Ltd. are not at arm's length.

Together Alpha Ltd. and Beta Ltd. own more than 25% of the Class A shares of Omega Ltd.

(4) Thin capitalization rules apply [Subsection 18(4)].

Interest expense deductible by Omega Ltd. in 1984:

10% × \$500,000	\$50,000
$12\% \times \$100,000 \times \frac{1}{2}$	6,000
	\$56,000

(4) Less: non-deductible portion,

$$\frac{\$600,000 - 3(\$20,000 + \$30,000)}{\$600,000} \times \$56,000 = \underbrace{(42,000)}$$

(12) Interest deductible in 1984

\$14,000

Paid-up capital owned by specified non-resident shareholders: Class A  $20\% \times \$100,000$  \$20,000 \$20,000 Class A  $10\% \times \$100,000$  \$30,000

Q.2 (a) "Gift Portion" on amalgamation:

20

(4

	FMV of S Ltd. shares FMV of SP Ltd. shares	\$ 50,000 20,000
4)		\$ 30,000

(b) Deemed proceeds of disposition of S Ltd.'s shares are lesser of:

	i) ACB of shares	\$100,000
	plus "gift portion"	30,000
(2)		\$130,000
(2)	ii) FMV of shares	\$ 50,000

Proceeds of disposition (lesser amount) \$ 50,000
(2) ACB of shares 100,000

Capital loss NIL

[deemed nil by Paragraph 87(4)(d)]

(c) Cost of shares in SP Ltd. is lesser of:

iii) ACB of shares of S Ltd.

	iv) FMV of shares of SP Ltd.	\$ 20,000	
	plus disallowed capital loss	50,000	
	,	\$ 70,000	
	Adjusted cost base (lesser amount)		\$ 70,000
(10)	Proceeds on death (FMV)		(40,000)
(10)	Capital loss		\$ 30,000

\$100,000

# 20 Q.3 Paragraph 88(1)(b)

# A. Tax values of S Ltd.'s net assets

(10)			Cash Securities Inventory Machinery Buildings Land  Debt Net Assets		\$ 50,000 150,000 100,000 50,000 100,000 100,000 \$ 550,000 (150,000) \$ 400,000
	В.	ii)	PUC of shares in S Ltd. Tax value of net assets Lesser of (i) and (ii)	\$1,500,000 400,000	\$ 400,000
(10)		iv)	ACB of shares in S Ltd. POD of shares [greater of (iii) and (iv)] Capital gain		\$1,000,000 \$1,000,000 \$ NIL

## 20 Q.4 Subsection 97(2)

(a) To maximize the rollover and defer recognition of income and capital gains, the agreed-upon amounts in the joint election will be equal to the tax values of the properties transferred to the "Canadian partnership". Hence,

			Agreed - upon Amount
(2) (2) (2)		Land at adjusted cost base Building at UCC Inventory at cost Total	\$20,000 40,000 1,000 \$61,000
(2) (5)	(b)	Cost of "hard" consideration Cost of partnership interest (\$61,000 - \$40,000)	\$40,000 \$21,000
(5) (2)	(c)	Capital cost of building to partnership CCA deemed claimed [Subsection 97(4)] UCC of building to partnership Recapture of CCA	\$60,000 (20,000) \$40,000 \$10,000

20	0	
20	Ų	.5

	Conital Cali	Case 1	Case 2	Case 3	Case 4
	Capital Gain				
	Lesser of:				
	Proceeds	\$1,000	NIL	NIL	\$ 500
	ACB of Opco	1,000	\$1,000	\$1,000	1,000
	Lesser	\$1,000	NIL	NIL	\$ 500
	Less: PUC	(100)	(100)	(100)	(100)
(8)	Capital Gain	\$ 900	NIL	NIL	\$ 400
	ACB Reduction				
	Lesser of:				
	ACB of Opco Sum of cash,	\$1,000	\$1,000	\$1,000	\$1,000
	debt and PUC	1,500	1,500	1,500	1,500
	Lesser	\$1,000	\$1,000	\$1,000	\$1,000
	Minus greater of:				
	Proceeds	\$1,000,			\$ 500
	PUC of Opco	100_	\$ 100	\$ 100	100
	Greater	(1,000)	(100)	(100)	(500)
(12)	ACB Reduction	NIL	\$ 900	\$ 900	\$ 500

100 END OF SOLUTIONS

### ADVANCED TAX 509 EXAMINATION June, 1985

Marks Time: 3 Hours

#### NOTE:

- 1. This examination is based on the law as it stood on January 19, 1984.
- 2. To obtain full marks to a question, you should reference your answers to the applicable provision(s) in the *Income Tax Act*. If a reference to one or more sections in the main body of the *Act* and to the ITAR provisions is required, the applicable reference should be given with the relevant part of your solution.
- 3. Round all calculations to the nearest dollar.
- Q.1 Partnership ABC has net income from its business of \$160,000 for its fiscal period ended December 31, 1984. The partnership consists of three partners A, B and C, who share the profits and losses on a 50%, 30% and 20% basis respectively. A and B are individuals and C is a corporation. In addition to the business income of \$160,000, the partnership also has income from the following sources which is allocated to the partners in their profit-sharing ratio.
  - The partnership received taxable dividends of \$18,000 from Company Y, a Canadian corporation.
  - The partnership disposed of two capital properties in the year and realized a net capital gain of \$10,000. This amount consisted of a \$30,000 capital gain and a \$20,000 capital loss.
  - The partnership disposed of certain rights acquired in 1980 and realized \$32,000
     an eligible capital amount of \$16,000 (the balance of the CEC is nil).
  - During the year the partnership donated \$18,000 to various Canadian charitable organizations.
  - The partnership incurred \$12,000 of interest expense that was directly related to the capital investment in Company Y.
  - Partners A, B and C contributed \$40,000, \$24,000 and \$16,000 in capital respectively.
  - Drawings for the period were as follows:

A \$75,000 B \$50,000 C \$50,000

### **REQUIRED:**

Calculate the *net* effect on A's taxable income for 1984 from the above transactions. Show *all* calculations.

## ADVANCED TAX 509 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks			Time: 3 Hour
20	Q.1	Effect on A's income	
	(5)	Business income Add: eligible capital amount	\$80,000 8,000 \$88,000
		Investment income	
		Dividend income 1/2 gross-up	\$9,000 4,500
	(5)	Less interest expense	13,500 (6,000) \$ 7,500
		Capital transactions Capital gains Less capital loss Net capital gain	\$15,000 10,000 \$ 5,000
	(5)	Taxable capital gain (one-half) Income from partnership	2,500 \$98,000
	(5)	Deductions available to partners in determining taxable income Charitable donations Net effect on A's taxable income	(9,000)

# 20 Q.2 NOTE: 2 marks for each

- 1) False Subsection 96(1) income of a partnership is calculated *as if* it were a separate person.
- False only income or loss is determined at partnership level; taxable income is calculated at individual level.
- 3) True Subsection 99(2).
- 4) False Subsection 85.1(1) share must be acquired from A Ltd.
- 5) True Paragraph 85.1(1)(b).
- 6) True Paragraph 248(1) "share".
- 7) False Subsection 104(21) cannot designate capital losses in preferred beneficiary election.
- 8) True Subsection 96(1) only deductible in computing *taxable* income of each partner.
- 9) False Subsection 89(1)(g) must specifically qualify under the Act.
- 10) True Subsection 97(2) and 85(1)(c.1).

20	Q.3	(a) Cost of Class B shares:		
	(6)	ACB of old shares		\$1,000
		Exceeds		\$1,000
		FMV of non-share consideration		(600)
		Cost of Class B shares		\$400
		(b) Calculation of capital gain:		
		Cost of Class B shares Cost of non-share consideration		\$400 600
	(6)	POD of old shares		\$1,000
		ACB of old shares		(1,000)
		Capital gain		NIL
		(c) Deemed dividend on cancellation of old sh	ares [subsection 84(3)]	:
	(8)	Amount paid by debt		\$600
		PUC of Class B shares		200
		Total amount paid		\$800
		PUC of old shares		(200)
		Deemed dividend		<u>\$600</u>
20	Q.4			
	(5)	A. Without election		
		Proceeds of disposition		\$300,000
		Adjusted cost base		_(250,000)
		Capital gain		\$ 50,000
		Taxable capital gain		\$ 25,000
	(15)	B. Deemed dividend		\$ 50,000
		Less:		
		NR Ltd.'s exempt surplus [paragraph 113(1)(a)]	\$20,000	
		Underlying foreign tax multiplied		
		by relevant tax factor less one	¢11 700	
		$$10,000 \times (2.17 - 1.00)$	\$11,700	(21.700)
		Taxable amount		<u>(31,700)</u>
		raxable amount		\$ 18,300

20	Q.5		Applicable provisions: paragraph 85(1)(c.1) and (e.2).		
	(5)	Α.	Elected amount		\$8,000
			Deemed elected amount [paragraph 85(1)(c.1)]		\$10,000
		В.	Indirect gift under paragraph 85(1)(e.2)		
			FMV of property		\$60,000
			Exceeds greater of:		
	(10)		i) FMV consideration ii) deemed elected amount	\$ 1,000 10,000	(10,000) \$50,000
			Inadequate consideration		
			Indirect gift (90% × \$50,000) Elected amount Deemed elected amount		\$45,000 10,000 \$55,000
		C.	Black's Tax Position		
	(3)		Deemed proceeds of disposition ACB of property Capital gain		\$55,000 (10,000) \$45,000
	(2)	D.	Omega's ACB in Property:		\$55,000

100

**END OF SOLUTIONS** 

# MANAGEMENT 510 EXAMINATION December, 1984

Marks Time: 3 Hours

NOTE: Answer any FOUR of the following five questions.

25 Q.1 In our society, there has been a significant change in what individuals and groups expect of organizations.

### REQUIRED:

- (5) (a) What is the meaning of "corporate social responsibility"?
- (8) (b) How can organizational social performance be systematically measured?
- (12) (c) Describe four barriers to greater social responsibility by business firms.
- 25 Q.2 The impact of job specialization on the worker has become an important topic of debate and research in management studies.

#### REQUIRED:

- (4) (a) Identify and discuss two advantages or benefits of job specialization.
- (13) (b) Describe the modern views on the disadvantages of job specialization for employee satisfaction.
- (8) (c) Briefly outline two approaches to making routine jobs more rewarding.
- 25 Q.3 Managing change is a necessity for organizational survival and success.

#### REQUIRED:

- (4) (a) How can a manager recognize when the time for major organizational change has come?
- (9) (b) Identify three reasons why organization members may resist planned change?
- (12) (c) Discuss briefly <u>four</u> methods a manager could use to overcome resistance to change.

Page 1 of 2

Q.4 An influential and controversial approach to motivating human behavior is known as operant conditioning or behavior modification.

#### REQUIRED:

- (8) (a) How does the operant conditioning approach to behavior work?
- (5) (b) List five rules for using operant conditioning techniques.
- (12) (c) What are four techniques that managers could use to modify the behavior of subordinates?
- 25 Q.5 How useful a budget can be as a financial control device depends, in part, on understanding the functional and dysfunctional aspects of budgets and knowing how the dysfunctional aspects might be overcome.

#### REQUIRED:

- (10) (a) Briefly describe five functional aspects of budgets.
- (10) (b) Briefly describe five dysfunctional aspects of budgeting that can arise.
- (5) (c) Suggest two ways to overcome the dysfunctions of budgeting.

100

END OF EXAMINATION

# MANAGEMENT 510 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

Performance was satisfactory for the most part, and better overall than in previous examination sessions. In the marking, special consideration was given to the fact that Question 5 related to material which was categorized as Level 4 in the lesson notes.

#### Specific

- Q.1 (a) Marks were lost for suggesting that corporate social responsibility implies a rejection of the profit motive.
  - (b) Marks were lost for declaring that corporate social responsibility cannot be systematically measured. Some students discussed how it could be measured but did not describe any systematic approaches.
  - (c) Fairly well answered. Some students did not explain why certain factors were barriers, e.g., unions, government laws.
- Q.2 (a) Most students did not identify as an advantage of specialization the opportunity of job choice that is presented. Many students also gave two advantages that were really one - productivity/ efficiency.
  - (b) A frequent weakness here was the simple listing of "task identity", "skill variety", etc. without relating to the question at hand.
  - (c) Some students mixed up the concepts of job enlargement and enrichment, but otherwise this part was fairly well answered.
- Q.3 Generally well answered.
- Q.4 (a) Some students confused operant conditioning with another theory such as the expectancy model of motivation.
  - (b) Fairly well answered.
  - (c) Generally well answered.
- Q.5 Most students who attempted this question covered the main points quite well.

# MANAGEMENT 510 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 25 Q.1
  - (5) (a) Corporate social responsibility means that a business should not simply pursue profit but should also pay some consideration to social needs and the societal consequences of their corporate behavior. The concept can also mean that management involves itself in such social causes as aid to education, urban renewal, and opening up job opportunities to minorities and women. Some major corporations provide a variety of social services for their employees and some companies have invited the community to participate in some corporate decisions affecting the area.
  - (8) (b) The corporate social audit is one systematic measure of an organization's social performance and impact. It is an attempt to measure, monitor and evaluate the organization's performance with respect to its social programs and objectives.

One approach to the social audit analyzes the costs and benefits of the organization's major interactions with its external environment. The values attached to the transactions can only be approximations.

A second approach is based on the major social programs engaged in by the particular organization. The audit attempts to measure how well corporate social programs meet their original objectives.

 ${\bf NOTE}\ {\bf TO}\ {\bf MARKER:}\ {\bf To}\ {\bf obtain}\ {\bf full}\ {\bf marks}\,,$  the student must identify at least one approach.

(12) (c) Four barriers to improved social performance are as follows:

The Individual Manager - Their careers may be in jeopardy if they advocate socially responsible actions of which their supervisors disapprove or if they make unprofitable trade-offs.

The Division - Any socially responsible decision that reduces the level of profits might threaten the division's viability. Thus, most divisions are slow to initiate socially responsible programs until they receive clear directions from senior management.

Continued...
Page 1 of 5

The Organization - At this level, the greatest barrier is the focus on profits.

The Industry - At this level, the concern is that a company's social responsibility may affect its competitive position and that companies that regard each other as competitors may be reluctant to enter into an industry-wide agreement.

25 Q.2

(4) (a) As Adam Smith and Frederick Taylor demonstrated, the major advantage of job specialization is increased efficiency and productivity. Specialization allows people to learn skills and become experts, and simplified jobs can be learned in a relatively short period of time.

A second advantage is that the specialization of work produces a variety of tasks which provides people with a range of choices and opportunities in jobs.

- (13) (b) Modern management writers point to the problems that extreme work simplification can cause individuals. Writers like Argyris, Herzberg, and McGregor argue that when jobs become highly specialized or fragmented, workers find their tasks to be monotonous and unsatisfying, and therefore lose their sense of autonomy and challenge. These writers do not claim that all forms of specialization are undesirable. But they do suggest that specialization in some areas has reached the point where its advantages in efficiency and productivity have been cancelled out by the human disadvantages of alienation and low morale.
- (8) (c) Two approaches to making routine jobs more rewarding are job enlargement and job enrichment. (See Stoner, p. 259 for succinct descriptions of each of these approaches.)

25 Q.3

(4) (a) A manager can better recognize when the time for major organizational change has come by understanding how pressures for stability and for change interact, and by looking for and anticipating signs that changes are needed.

Examples: Declining profits, loss of market share, customer complaints.

(Sample answer - flexibility required on the part of the marker.)

Continued...
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- (9) (b) Stoner (pp. 385-386) outlines three general sources of resistance to change:
  - i) Organization members may resist change because they wish to avoid uncertainty about the causes and effect of the change.
  - ii) Members may resist change because they are unwilling to give up existing benefits.
  - iii) Sometimes members will resist change because they are aware of potential problems and weaknesses that may have been overlooked by the change initiators.
- (12) (c) Six techniques or methods for overcoming resistance to change are:
  - 1) Education and Communication
  - 2) Participation and Involvement
  - 3) Facilitation and Support
  - 4) Negotiation and Agreement
  - 5) Manipulation and Co-optation
  - 6) Explicit and Implicit Coercion

NOTE: Students are expected to identify and briefly elaborate on any four of the above methods. For details, see Stoner, pp. 386-388.

25 0.4

(8) (a) The operant conditioning approach is based on the idea that the consequences of an individual's behavior in one situation influence that individual's future behavior in a similar situation. This approach focuses on establishing work situations - such as reward and recognition policies - that help subordinates learn work habits that are satisfying to them and that help achieve organizational goals.

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- (5) (b) Rules for using operant conditioning techniques are:
  - Do not reward all individuals equally.
  - Be aware that failure to respond can also modify behavior.

Continued...
Page 3 of 5

- 3) Be sure to tell individuals what they can do to get reinforcement.
- 4) Be sure to tell individuals what they are doing wrong.
- 5) Do not punish in front of others.
- 6) Be fair.

NOTE: Students may answer any five of the above. (Stoner, p. 458)

(12) (c) Four techniques that managers can use to modify the behavior of subordinates are positive reinforcement, avoidance learning, extinction, and punishment.

**NOTE:** Students are expected to elaborate on these four techniques in order to obtain full marks. For details see Stoner, pp. 455-456.

- 25 Q.5
  - (10) (a) Students may identify any five of the following functional aspects of budgets:
    - positive impact on motivation
    - coordinate the work of the entire organization
    - signal for taking corrective action
    - help people learn from past experience
    - improve resource allocation
    - improve communication
    - help lower-level managers see where they fit in the organization
    - show new staff where the organization is going
    - a means of evaluation (For more details, see Stoner, p. 632)
  - (10) (b) Five dysfunctional aspects of budgeting are:
    - Differing perceptions of budgets by organization members leading to frustration and tension.
    - Mechanical considerations, such as the expense in operating a budget system exceeding the benefit.
    - 3) Communication of actual results not being made soon enough in order to correct errors or avoid repeating them again.
    - 4) The motivational impact of budgets includes pressures for increased efficiency which are felt by employees, who may resist and resent those pressures.
    - 5) If the budget sets goals that are too difficult and unattainable then employees may reject the goals and their performance will drop off sharply.

Continued...

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(5) (c) There are a number of ways to overcome the dysfunctional aspects of budgeting. They include: communicating results immediately and directly to employees can improve the control purpose and perhaps reduce differing perceptions of budgets; meetings between managers and subordinates to agree on budget standards can often reduce the resentment that budget pressures generate; and, setting goals that are difficult but attainable can challenge and inspire employees to improve their performance.

NOTE: The marking of this question was adjusted to take account of the fact that the topic was not Level 1 material.

100

OF SOLUTIONS

# March, 1985

Marks Time: 3 Hours

NOTE: Answer FOUR of the following six questions.

Q.1 "Management by objectives" (MBO) has spurred a good deal of discussion, implementation and evaluation.

#### REQUIRED:

- (7) (a) Define MBO, specifying its major characteristics.
- (8) (b) Briefly discuss the common elements of effective MBO systems? (NOTE: to obtain full marks, at least four elements must be identified.)
- (10) (c) Explain how MBO can lead to better employee performance.
- 25 Q.2 Good management requires an effective system of control.

#### REQUIRED:

- (5) (a) Define the concept of management control.
- (10) (b) Briefly describe two non-budgetary types of control in an organization.
- (10) (c) What guidelines would you recommend to a manager in order to achieve the most effective degree of control?
- 25 Q.3 Many factors influence the design of organizational structures and the division of work.

#### REQUIRED:

Why do different organizations have different structures? In your answer:

- (12) (a) Describe the <u>four</u> major determinants of organizational structure.
- (13) (b) Briefly discuss the three factors that determine the amount of decentralization appropriate for an organization.

25 Q.4 An important management issue concerns the extent to which managers are able to choose among leadership styles. Recently, several 'contingency models' of leadership have been developed.

#### REQUIRED:

- (10) (a) Explain why it is <u>desirable</u> for managers to be flexible in their choice of leadership style.
- (15) (b) There are two opposing views on whether in practice managers can select different leadership styles appropriate to work situations. Outline these views and briefly discuss their implications.
- Q.5 An organization can be changed by altering its structure, its technology or its people.

#### REQUIRED:

- (17) (a) Discuss the meaning and implications of changing an organization's 'people' and identify some approaches for implementing change in this fashion.
- (8) (b) What is a 'change agent', and when would an organization need one?
- 25 Q.6 Since there are a great number of problems and opportunities facing most organizations, a critically important skill for many managers is the ability to define the decision-making situation and select the right problem or opportunity to work on.

#### REQUIRED:

- (13) (a) When presented with a number of problems, what questions should a manager ask himself/herself in order to select those problems which merit the expenditure of time and energy? Specify three questions and discuss their relevance.
- (12) (b) Describe four common situations in an organization which may alert managers to existing or potential problems to which they should give attention.

100

END OF EXAMINATION

# March, 1985 EXAMINER'S CAMPSES

#### General

Overall, performance was relatively low. Several basic management concepts were poorly understood and were thus expressed at a less than satisfactory standard.

### Specific

- Q.1 Many students appeared not to have carefully read the requirements. Many defined or described MBO briefly, without specifying its major characteristics. Many also lost marks in part (b) by not identifying at least 4 elements.
- Q.2 A common problem in part (a) was an answer that gave a description rather than a definition of the concept of management control. Though related, they are not the same thing. A majority of students did not address the issue of "balance" in part (c) nor consider the limits of control.
- Q.3 This question was answered satisfactorily by most students.
- Q.4 Most students in part (a) only noted one basic reason for flexibility, i.e., the various settings a manager may be in, and did not identify any other considerations.
  - In part (b) many answers failed to discuss, even briefly, the implications of the two opposing views on leadership styles and training.
- Q.5 Some answers for part (a) concentrated exclusively on one or more approaches to change without discussing the meaning and implications of "people change".
  - Many answers for part (b) did not distinguish between the need for an inside as opposed to an outside change agent.
- Q.6 Answered adequately.

# MAINATION March, 1985 SUGGESTED SOLUTIONS

Marks

Time: 3 Hours

25 Q. 1

(7) (a) Management by objectives (MBO) was popularized as an approach to planning which builds on the link between the planning and control functions. It is a formal set of procedures that covers goal setting through to performance review. It is a participative process, actively involving managers and their subordinates at every organizational level. Each person's major areas of responsibility are clearly defined in terms of measurable expected results (objectives). These objectives are used by subordinates in planning their work and by both subordinates and their superiors for monitoring progress through regular periodic reviews and appraising performance.

NOTE TO MARKER: A reference to the means-ends hierarchy would also be appropriate.

- (8) (b) In most effective MBO systems the following common elements exist:
  - commitment to the program at every organizational level;
  - ii) top-level goal setting;
  - iii) clearly defined individual goals and job responsibilities;
  - iv) mutual participation of managers and subordinates in setting goals;
  - v) autonomy in implementation of plans; and
  - vi) mutual periodic review of performance.

NOTE TO MARKER: The above elements are from Stoner, pp. 147-148. Students may also identify elements from Stoner p. 153 or from the article by Tosi and others, Appendix 2-I.

Continued...
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- (10) (c) With respect to goal setting, the evidence shows that individuals who set their own goals tend to aim for an improvement on past performance. Furthermore, when employees are given specific goals they reach a significantly higher performance level than those who are merely asked to do their best. There is also clear evidence that providing feedback about performance to employees generally leads to better performance and has positive effects on employees' attitudes. Moreover, subordinates who set or participate in setting their own goals are likely to show higher performance levels than those who have goals set for them.
- 25 Q.2
  - (5) (a) Control is the process through which managers assure that actual activities conform to planned activities.
    - (10) (b) Non-budgetary types of control in an organization include:
      - i) organizational controls standards from the plans and purposes of the organization expressed in nonfinancial terms.
      - ii) social controls rules of conduct derived from "group norms" about work performance.
      - iii) self-controls based on personal goals, aspirations and motivation.
      - iv) performance appraisal or management by objectives
         (MBO) the evaluation, development and promotion of
         managers.

NOTE TO MARKER: Students may identify any two of the above. For details, see the McGregor and Dalton articles, Appendix 4-I and 4-II.

(10) (c) In establishing controls, the task for managers is to find the proper balance between appropriate organizational control and individual freedom. Managers need enough control to ensure order, efficiency and effectiveness in achieving organizational goals, yet not so much control as to make organizations stifling, inhibiting and unsatisfying places to work. The degree of control that is considered necessary but not harmful will probably vary from organization to organization and from one situation to another.

NOTE TO MARKER: Refer to Stoner, pp. 604-606.

- 25 Q.3
  - (12) (a) Four major determinants of organizational structure are:
    - i) strategy the mission and overall goals of an organization help shape the lines of authority and communication channels between managers and subunits.
    - ii) technology the nature of the technology used to create products or the methods used to offer services helps influence the degree of standardization and specialization of work activities, coordination mechanisms and size of units.
    - iii) <u>people</u> the abilities, attitudes and actions of managers and subordinates as well as people outside the organization (clients, suppliers) influence its structure.
    - iv) <u>size</u> the size of an organization affects its level of specialization and formality or standardization of procedures.
  - (13) (b) Three factors that determine the amount of decentralization appropriate for an organization are:
    - the organization's environment influences outside the organization such as market features, competitive pressures and the availability of resources are important. Researchers suggest that organizations in more stable and predictable external environments are more centralized.
    - ii) size and rate of growth as an organization grows in size and complexity there is a tendency for decentralization to increase. When the growth rate slows or stops, upper management may recentralize decision-making authority.
    - iii) internal characteristics of the organization these include the cost and risk associated with decisions, an individual manager's leadership style, the history of the organization, and the abilities of lower-level managers and employees.
- 25 Q.4
  - (10) (a) Flexibility in leadership styles is desirable because it helps managers respond appropriately to people and situations and to make adjustments when things do not turn out as anticipated. Managers should therefore be aware of the variety of leadership styles available. If managers are

Continued...
Page 3 of 5

relatively inflexible in leadership style, then they will operate effectively only in those situations that best match their style or which can be adjusted to match their style. Flexibility, on the other hand, can assist the careers of individual managers and simplify the organization's task of filling its management positions.

(15) (b) Fred Fiedler believes that leadership styles are quite inflexible and is also very pessimistic about the possibility of training individuals to use different styles. Fiedler suggests that managers be matched to the situation or that the situation be changed to suit the manager.

Victor Vroom and Philip Yetton are more optimistic about the ability of managers to select a style appropriate to each situation. In particular, they believe managers can determine the proper amount of group involvement in a variety of problem solving and decision-making situations. Vroom and Yetton have designed a training program to help managers learn to be more flexible.

NOTE TO MARKER: The names Fiedler, Vroom and Yetton are not required for the student to obtain full marks.

25 Q.5

(17) (a) Changing the organization's 'people' involves changing the selection, training, relationships, attitudes, or roles of organization members. Organizational development (OD) programs, for example, attempt to change the ways people work together to achieve personal and organizational goals. 'People changes' may include hiring and training new personnel, retraining or re-assigning existing personnel, and transferring, retiring, or firing individuals unable to adjust to new circumstances.

'People approaches' to change are intended to modify directly the behavior of employees by focusing on their skills, attitudes, perceptions and expectations so that they may perform more effectively and efficiently.

Efforts to change people's behavior and attitudes may be directed at individuals, groups, or the entire organization.

Approaches to changing people include OD, management development, performance appraisal, behavior modification, and Management by Objectives (MBO).

(8) (b) A change agent is the person responsible for playing a leadership role in managing the process of planned change. The change agent may be an organization member or an outside consultant.

Continued...
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S510M85

An organization would need a change agent, particularly one from outside the organization, for complex and lengthy change programs requiring specialized skills, freedom from daily operational duties, and the objectivity and prestige of an outsider.

An inside change agent, that is, an individual from within the organization, would be appropriate where the change program was short-term and relatively simple. Specialized skills and freedom from day-to-day work responsibilities would be less necessary.

- 25 0.6
  - (13) (a) When presented with a problem, managers should ask themselves the following questions:
    - i) Is the problem easy to deal with? If so, such problems rarely require more than a small amount of the manager's attention and could be referred to subordinates.
    - ii) Might the problem resolve itself? Few managers ever ask themselves this question. Problems left alone may take care of themselves or be dealt with by others, saving time for the manager to deal with higher priorities.
    - iii) Is this my decision to make? A general rule is: the closer to the origin of the problem the decision is made, the better.
  - (12) (b) Four common situations which may alert managers to problems are:
    - i) when there is a deviation from past experience;
    - ii) when there is a deviation from the plan;
    - iii) when other people present problems to the manager; and
    - iv) when competitors outperform the manager's organization.

(Students are expected to elaborate briefly on each situation. For details see Stoner, pp. 165-166.)

100

END OF SOLUTIONS

S510M85

# June, 1985

Marks Time: 3 Hours

NOTE: Answer any FOUR of the following six questions.

25 Q.1 In designing a control system, several basic steps should be followed by managers to ensure effective results.

### REQUIRED:

Describe <u>five</u> basic steps that should be followed in the design of all types of control systems.

25 Q.2 The need for strategic planning has increasingly become a fact of organizational life.

#### REQUIRED:

- (5) (a) Define strategic planning and distinguish it from operational planning.
- (15) (b) Describe the three modes of strategy making that a manager may use.
- (5) (c) Identify the characteristics of an organization in which each of these modes of strategy making would be appropriate.
- 25 Q.3 The external environment can influence the operations and decisions of an organization.

#### REQUIRED:

- (10) (a) Identify specific elements in the external environment of an organization which may <u>directly</u> and <u>indirectly</u> affect its operations.
- (8) (b) Outline three techniques managers can use to influence the direct-action environment.
- (7) (c) Specify three techniques managers can use to keep abreast of developments in the indirect-action environment.

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25 Q.4 In modern bureaucracies, a formal authority system is necessary to achieve organizational objectives.

#### REQUIRED:

- (9) (a) Define and distinguish between the terms influence, power and authority.
- (16) (b) Describe and contrast the  $\underline{\mathsf{two}}$  major views on the origin of formal authority in organizations.
- 25 Q.5 To deal effectively with groups and group leaders, managers must be aware of some special characteristics of group behavior.

#### REQUIRED:

- (10) (a) Describe the two most important roles performed by group leaders.
- (10) (b) Define the concept of group norms and outline methods which group members may use in dealing with one another to ensure that norms are followed.
- (5) (c) What is the difference between group conformity and group cohesiveness?
- 25 Q.6 The major approaches to understanding motivation can be classified into content, process, and reinforcement theories.

#### REQUIRED:

- (18) (a) Describe each of the above approaches. Indicate their basic similarities and differences. In your answer, as appropriate, refer to <u>specific</u> theories which illustrate the three general approaches named above.
- (7) (b) Outline the systems perspective on motivation.

100

END OF EXAMINATION

E510J85

# MANAGEMENT 510 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

The majority of students successfully passed this examination, displaying an adequate or better grasp of the relevant concepts.

# Specific

- Q.1 Generally this answer was done <u>fairly</u> well. A common problem was inadequate detail given the right bare bones but little or no flesh (detail). For a good number of answers, step (i) or (ii) was inadequately described. Also, most answers did not give a general definition of the control system.
- $\mathbb{Q}.2$  (a) Done well, by and large. The main problem here was failure to note all the main differences between strategic and operational planning.
- (b) More difficulty was encountered here by some students. One or more of the modes was incorrectly designated and described by many. A good number of answers discussed styles of participation, and some discussed risk, certainty and uncertainty in decision making.
- Q.3 (a) Adequately (or better) answered by most students. The main problem was that some students simply listed several factors without identifying and/or grouping them as to direct and indirect elements.
  - (b) & (c) Also done fairly well. The problems here usually were that the <u>same</u> idea would be repeated under slightly different wording for different techniques.
- Q.4 (a) Well done in general. Some discussed but did not define the concepts there is a key difference. For example, listing several sources of power but not then defining what power is.

  There were some problems distinguishing between influence and power.
  - (b) This was a fairly common problem spot on the examination. The most frequent error here was to discuss two types of authority (staff vs. line) or two styles of leadership, rather than the two views on the origins of authority.

Continued ...

- Q.5 (a) Often, two roles were given but one or both were incorrect or not quite on target, e.g., two of Mintzberg's roles would be noted, or informal vs. formal roles, or mediator and organizer.
  - (b) Most students could list several techniques which groups can use to enforce conformity to group norms, but many could not as easily or effectively describe the general concept of group norms.
  - (c) This was the most difficult part of this question for most students. Cohesiveness, for many, seemed to imply a negative image of dominance through leaders and the power of norms.
- Q.6 (a) Relatively well done by most students. Many not only described the three theories, but also included a nice compare and contrast section in their answers.

The problems dealt mainly with confusing one theory with another, or describing the wrong theory(ies), for example, rather than discussing content theory, some students discussed job content theory.

(b) This was the least satisfactory part of the whole exam. Many students apparently had no idea or recollection of what the systems perspective on motivation was. A good number of students talked about systems theory in a very general way. A significant number of students left this part blank.

# June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- $\,$  2.1 The five basic steps that should be followed in establishing a control system are as follows:
  - i) define desired results;
  - ii) establish predictors of results, including early warning predictors;
  - iii) establish standards for predictors and results;
  - iv) establish the information and feedback network;
  - v) evaluate information and take corrective action.

NOTE TO ..... Students are expected to elaborate on each of these steps.

25 Q.2

(5)

(a) Strategic planning is the formalized, long-range planning process used to define and achieve organizational goals. It deals with basic questions, provides a framework for more detailed planning, involves a long time frame, provides a sense of coherence, and is a top-level activity.

Operational planning, by contrast, is done at lower levels of management, focuses on the present, and is concerned more with efficiency than effectiveness.

(See Stoner, Table 4.1, p. 102 for a summary of the main differences between strategic and operational planning).

(15) (b) Three modes of strategy making are entrepreneurial, adaptive, and planning.

In the entrepreneurial mode, a strong leader makes bold, risk-taking decisions more or less based on intuition and personal judgment formed by experience. The entrepreneurial organization is motivated by one overriding goal-constant growth. Strategy making is dominated by an active search for new opportunities guided by the leader's personal plan of attack.

Continued...
Page 1 of 4

In the adaptive mode, the manager reacts to each situation as it arises. The adaptive organization moves ahead timidly in a series of small, disjointed steps because it lacks a central, unified source of power.

In the planning mode, the manager undertakes formal strategic planning. This provides this type of organization with a guiding framework and strong sense of direction which the other modes lack. Managers under this mode follow a systematic procedure in relating to their environment and making decisions.

(5) (c) A small, relatively young organization with a strong chief executive who likes bold action is very appropriate for the entrepreneurial mode. This mode may also suit an organization in trouble.

The adaptive mode may be the only choice open to organizations committed to irreversible investments and having a management structure of competing groups holding one another in check.

The planning mode is quite likely to exist in a marketing department or corporate planning unit.

25 0.3

(10) (a) The direct-action environments of organizations include those elements of the total external environment that directly affect and are affected by the organization's major operations. The indirect-action environments include those elements of the external environment which do not directly influence the work of the organization but which can influence its decisions.

Examples of direct-action elements are consumers, government agencies, competitors, labor organizations, suppliers, and financial institutions. Examples of indirect-action elements are technology, the economy, political-legal variables and international dimensions.

- (8) (b) Managers can influence their direct-action environments through advertising, negotiated agreements with suppliers and unions, and lobbying provincial capitals and Ottawa.
- (7) (c) Managers resort to a variety of techniques to keep abreast of developments in the indirect-action environment. These techniques include monitoring environment trends continuously, doing research, using forecasting techniques, and gathering information from a wide range of sources.

NOTE TO MARKER: Use flexibility in marking part (c).

S510J85

25 Q.4

(9) (a) Influence refers to actions or examples that directly or indirectly cause a change in behavior or attitude of another person or group.

Power is the ability to exert influence; it is potential influence.

Authority is one type of power; it is legitimate or lawful power. (Students may remember from Fiedler's discussion of leadership that position power is equivalent to legitimate authority.)

(16) (b) The classical view assumes that authority originates at some very high level of society and then is lawfully passed down from level to level. Thus, management has a right to give lawful orders and subordinates have an obligation to obey. This view is both normative and descriptive. It expresses the way individuals should - and most often dobehave and that disobedience of legitimate orders of managers is wrong and indefensible. The classical view is not, however, fully descriptive. It does not account for the fact that many laws are disregarded and that others are obeyed for reasons other than acceptance of authority, such as fear or habit.

The acceptance view finds the basis of authority in the influence rather than in the influencer. This view observes that not all legitimate laws or commands are obeyed in all circumstances. The key point is that it is the receiver who decides whether or not to comply. In this second view, therefore, whether or not authority is present in any particular order is determined by the receiver, not the person issuing the order.

- 25 Q.5
  - (10) (a) Group leaders, whether formal or informal leaders, play two basic roles. In the task role, the leader directs the group toward completion of the activities it is seeking to accomplish. In the group building and maintenance role, the leader is concerned with fulfilling the group's social needs by encouraging feelings of solidarity.
  - (10) (b) Group norms are expectations that group members form over time about how they and other members of the group will behave. These norms affect members when members of the group exert pressure on one another to ensure that these expectations are met. When an individual does not conform to group norms, the other members will use persuasion, reason, then criticism, sarcasm and ridicule to persuade the deviant to conform. Ultimately, the group may resort to ostracism or physical assault of the individual.

Continued...

(5) (c) Group conformity is when all members conform to the group's expectations and norms about acceptable behavior. Group cohesiveness refers to the positive feelings individuals feel about their membership in the group. Both conditions relate to group influence over members.

25 2.6

(18) (a) Content theories stress the importance of understanding the factors within individuals that cause them to act in a certain way. Content theories focus on the "what" of motivation. Individuals have inner needs that they are driven, pressured or motivated to reduce or fulfill. They may be motivated by the need for security, or achievement, for example. The specific need they have will determine the action which they take.

Process theories focus on the "how" of motivation and by what goals individuals are motivated. In this view, needs are just one element in a process by which individuals decide to behave. The notion of expectancy is basic to this approach. Expectancy refers to what the individual believes is likely to occur as a result of his or her behaviour. An additional factor is the valence or strength of the individual's preference for the expected outcome.

Reinforcement theories emphasize the ways in which behaviour is learned. Examples are operant conditioning and behaviour modification. These theories do not use the concept of a motive or a process of motivation. Instead, they deal with how the consequences of a past action influence future actions in a cyclical learning process. In this view, people behave the way they do because, in past circumstances, they learned that certain behaviours were associated with pleasant outcomes and other behaviours were connected with unpleasant outcomes.

(7) (b) The systems perspective on motivation suggests that there are three major variables in organizations that affect motivation, and that it is the relationship among these variables that ultimately determines the degree of motivation an employee will fill. The three variables are individual characteristics, job characteristics, and work situation characteristics.

100

END OF SOLUTIONS

# MANAGEMENT ACCOUNTING 512 EXAMINATION December, 1984

Marks Time: 3 Hours

NOTE: Your answers should be presented in good professional form. That is, they should be well articulated, integrated, and concise. Conclusions should be based on substantive content and convincing logic: simply listing points is inadequate. Exhibits should be logically presented and clearly labelled.

25 Q.1

(15) (a) "Budgets are meaningless in my business because I simply cannot forecast my sales for next year. Only if you can tell me which of my bids will be accepted can I prepare a meaningful budget," protested the president of a small custom manufacturer of diecast parts for the automobile industry.

Discuss, with respect to the above statement, the role of budgets and explain to the president how budgeting could help him in his bidding.

(10) (b) Discuss the factors that should be considered in designing a management incentive plan in a large decentralized multidivisional corporation.

Q.2 On his retirement from politics in 1982, Paul E. Turner had purchased Cowichon Industries Limited (CIL) and as president had focused his energies on running the company. (CIL was a well established sweater manufacturer.) Mr. Turner has just received the 1983 operating report (Schedule I) from his accountant, Mr. Able, and is puzzled as to why his efforts to increase volume have resulted in a large unfavorable profit variance.

Outside his office, Mr. Turner was advised by an accountant friend that a more useful operating report format is to show variances from a flexible budget and to identify contribution. Mr. Turner, confused by Mr. Able's report, wondered if the Canadian Consumer Price Index (CPI) inflation rate of 10% in 1983 in any way accounted for his poor operating results.

### REQUIRED:

(10) (a) In your examination booklet prepare a revised 1983 Contribution Operating Statement in the columnar format indicated below, showing in separate columns: Fixed Budget, Flexible Budget, Actual and Variance from Flexible Budget, and in each case identifying the contribution.

# Cowichon Industries Limited 1983 Budget, Actual and Variance Statement

Item	Fixed Budget	Flexible Budget	Actual	Variance from Flexible Budget
	A	В	C	B - C

- (6) (b) Prepare schedules analysing variances from Fixed Budget for:
  - i) Sales
  - ii) Variable manufacturing costs
  - iii) Variable selling and administration expenses
- (4) (c) Prepare a schedule analyzing the *contribution* variance from fixed budget, indicating the source of responsibility for variances.
- (3) (d) Comment on the results of the 1983 variance analysis.
- (2) (e) What changes in the reporting system would you recommend?

#### Schedule I Cowichon Industries Limited Income Statement For the year ended December 31, 1983

	Budget	Actual	Variance
Total market (units) Market share (%) Sales (units)	10,000,000 10 1,000,000	12,000,000 9.17 (rounde 1,100,000	2,000,000 ed) 100,000
Sales revenue	\$25,000,000	\$25,300,000	\$ _300,000
Less cost of sales Material Labor Overhead	\$ 6,000,000 5,000,000 	\$ 6,400,000 5,600,000 5,240,000 \$17,240,000	\$ (400,000) (600,000) 260,000 \$ (740,000)
Operating profit	\$_8,500,000	\$ 8,060,000	\$ (440,000)
Selling Administration	\$ 3,000,000 3,100,000 \$ 6,100,000	\$ 4,700,000 3,250,000 \$ 7,950,000	\$ (1,700,000) <u>(150,000)</u> \$ (1,850,000)
Profit before income tax	\$ <u>2,400,000</u>	\$110,000	\$ (2,290,000)

NOTE: For comparison, the 1982 unit sales were 900,000, and

 Overhead
 \$5,450,000

 Selling
 \$2,800,000

 Administration
 \$3,090,000

1983 budget was arrived at by using 1982 actual.

Fixed expenses may be identified by graphing, high/lowing, or applying another method to the 1982 and 1983 expenses.

#### The 1983 actual fixed expenses were:

Overhead	\$4,800,000
Selling	\$1,400,000
Administration	\$3,100,000

Q.3 Ms. Cigi Aye, president and majority owner of Aye Bakery Limited (ABL), is reviewing the company's preliminary 1983 operating statements (Exhibit I). The 1983 operating results have come as an unpleasant surprise and she has requested some additional information from her accountant, R. Bee (Exhibit II). During her two years as president, Ms. Aye has converted the bakery from a local supplier of fresh bread to an expanding business supplying a broad line of breads and confectionery products to the metropolitan area. Sales have doubled and she cannot believe that profits have declined so precipitously. Hitherto she has not paid much attention to the operating statements as she has left the management of the bakery to her production manager so that she could concentrate on expanding ABL's marketing outlets.

Her first move as president in February 1982 was to appoint a qualified baker as production manager, with instructions to expand production into confectionery lines. The production manager requested the necessary mixing, baking and conveyer equipment, which were purchased and installed by June 1982. Since then, production has presented few problems and ABL's expanded lines of fresh bread and confectionery products were well received.

Marketing became Ms. Aye's top priority to expand sales in order to increase production to capacity. Her strategy was to purchase small bakery stores and to appoint managers to operate them. The managers were paid competitive salaries with a bonus based on profit increases. Ms. Aye figures that purchasing these outlets achieved two ends: first, sales were increased, leading to increased profits; second, excess cash was invested in property which would appreciate significantly over time.

The accountant, Mr. Bee, maintained a standard cost system and costed transfers to the stores at standard cost plus a 10% mark-up to cover selling and administrative expenses and profit. When a production run was completed, finished goods were debited and work-in-process credited for the standard cost of the product transferred. The standard costs of labor and overhead were based on the standard time to produce the batch. There was considerable waste in the production of confectionery items. The production manager complained that the short daily production runs of many lines did not give him time to sort out the process.

#### REQUIRED:

You have been called in as a consultant to advise Ms. Aye. Draft a Report to her, advising her on any management accounting, management control system, and planning issues which you consider need changing.

Hint: Your report should be mainly qualitative\* and you should use the Exhibits to diagnose issues discussed in your report but do not attempt to prepare extensive quantitative exhibits. Where possible, substantiate your points by reference to the Exhibits and where necessary elaborate with calculations.

\*Explain why the Exhibit II cost of production of \$3,975,000 is \$100,000 more than the cost of sales in Exhibit I.

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## Exhibit I Aye Bakery Limited Balance Sheet December 31, 1983 \$'000's

	1981	1982	1983		1981	1982	1983
Current Assets Cash Accounts receivable Inventory	\$ 600 \$ 150 50 \$ 800 \$	200 200 150 5 550	\$ —  300 250 \$ 550	Current Liabilities Accounts payable Bank loan	\$ 100 <u> </u>	\$ 200  \$ 200	\$ 400 200 \$ 600
				Long-term loan	<b>\$</b> —	\$ 475	\$ 675
Fixed Assets Land Buildings Equipment	\$ 75 5 225 175 475	\$ 325 550 350 1,225	\$ 500 900 400 1,800	Owner's Equity Share capital Retained earnings	\$1,000 175 \$1,175	\$1,000 100 \$1,100	\$1,000 <u>75</u> \$1,075
	\$1,275	\$1,775	\$2,350		\$ <u>1,275</u>	<u>\$1,775</u>	\$ <u>2,350</u>

## Aye Bakery Limited Income Statement For the year ended December 31, 1983 \$'000's

	1981	1982	1983
Sales - Weight (pounds)	750	1,200	2,100
Sales - Dollars Less cost of sales	\$1,125 787	\$2,500 1,750	\$5,250 3,875
Gross Profit	\$ 338	\$ 750	\$1,375
Administration expenses Selling expenses Variances	160 22 15	260 250 65	375 525 375
	\$ 197	\$ 575	\$1,275
Profit before income tax Income tax	\$ 141 56	\$ 175 	\$ 100 40
Net Income	\$ 85	\$ 105	\$ 60

# Exhibit I (continued) Aye Bakery Limited Manufacturing Statement For the year ended December 31, 1983 \$'000's

	1981	1982	1983
Material	\$ 412	\$ 750	\$1,425
Labor	225	800	1,950
Overhead	150	300	600
	\$ 787	\$1,850	\$3,975
Add opening inventory	50	50	150
	\$ 837	\$1,900	\$4,125
Less closing inventory	50	150	250
Cost of sales	\$ 787	\$1,750	\$3,875

# Exhibit II Aye Bakery Limited Supplemental Operating Data by Segment Statement For the year ended December 31, 1983 \$'000's

	Bread	Confectionery	Total
Sales - pounds ('000's) (Note 1)	1,500	600	
Revenue	\$2,250	\$3,000	\$5,250
Cost of production (Note 2) Material Labor Overhead Standard cost of production	825 450 300 \$1,575	600 1,500 300 \$2,400	1,425 1,950 600 \$3,975

#### **NOTES:**

(1) Sales in pounds ('000's)

	Bread	Confectionery	Total
1981	750		750
1982	1,000	200	1,200
1983	1,500	600	2,100

(2) All at standard cost. The 1983 variances were ('000's):

Material Labor Overhead: Volume Budget	<b>Price</b> \$ 260 5	Usage \$ 65 145	Total \$ 325 150 (200) 100
0			100

100

**END OF EXAMINATION** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMADA

## MANAGEMENT ACCOUNTING 512 KKAMINATION December, 1904 EXAMINER'S COMMENTS

#### General

The quality of student answers showed significant improvement over prior examinations. Calculations were generally well done, and the case analyses showed appreciation of the implications of the situation presented.

#### Specific

- Q.1 Students must learn to read the question, do a brief skeleton outline, and so focus the answer to give a well-structured response.

  Too many answers were disproportionately long at the expense of later questions. It is essential to understand and internalize the question before commencing to write.
- Q.2 More attention should be paid to mechanistic aspects of lesson notes and assignments. Answers showed considerable improvement over prior years.
- Q.3 All students would benefit from writing a brief skeleton answer before drafting a report. The report should be specific to the company context. The examiner is looking for recognition of the company's problems and understanding of what should be done about them. Students should always explain reasons for their recommendations. A good practice is always to summarize recommendations at the end of an answer.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### MANAGEMENT ACCOUNTING 512 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

25 Q.1

(15) (a) Budgets are required for planning, monitoring and motivation, and because they are forecasts they always involve uncertainty.

The process of budget preparation forces identification of variables and attempts at estimation. Reiteration should improve process. Process forces positive attitude to attain goal.

A poorly estimated budget can indeed cause dysfunctional behavior.

In this case budget would provide incentive for going after bids and if direct costing used in monthly reports, an early indication of below par contribution and possible need to reduce bid prices and take corrective action.

A balanced discussion with conclusion is required.

(10) (b) First consider degree of decentralization and extent of responsibility and control over profit by officials. Consider including in plan only those who can influence profits and can see relation between effort and profit.

How much is total incentive to be; is there to be ceiling to bonus pot and to individuals? Consider diminishing returns between bonus increases and effort/incentive.

ls plan to be on a group sharing or individual basis, measured as portion of total profit or of responsibility center profit?

Usually, above considerations will narrow plan to divisional managers and higher level managers.

Consider dysfunctional effects such as forcing sales in December to increase bonus, but at expense of January sales: where ceiling is reached, deferring revenue to next period; false reporting, price fixing, etc.

Relative size of salary and bonus and incentive. Plan should be positive and not negative reinforcement.

Answer should consider pros and come to a conclusion.

25 Q.2 (10) (a)

#### Flexible Budget

	Budget	Flexible	Actual	Variance from Flexible Budget
	Α	В	С	B - C
Sales units	1,000,000	1,100,000	1,100,000	
Price/unit	25	25	23	
Sales revenue	\$25,000,000	\$27,500,000	\$25,300,000	\$(2,200,000)
Variable costs				
Material	\$ 6,000,000	\$ 6,600,000	\$ 6,400,000	\$ 200,000
Labor	5,000,000	5,500,000	5,600,000	(100,000)
Overhead	500,000	550,000	440,000	110,000
Selling	2,000,000	2,200,000	3,300,000	(1,100,000)
Administration	100,000	110,000	150,000	(40,000)
	\$13,600,000	\$14,960,000	\$15,890,000	\$ (930,000)
Contribution	\$11,400,000	\$12,540,000	\$ 9,410,000	\$(3,130,000)
Fixed				
Overhead	\$ 5,000,000	\$ 5,000,000	\$ 4,800,000	\$ 200,000
Selling	1,000,000	1,000,000	1,400,000	(400,000)
Administration	3,000,000	3,000,000	3,100,000	(100,000)
	\$_9,000,000	\$ 9,000,000	\$ 9,300,000	\$ (300,000)
Profit before				
Income tax	\$_2,400,000	\$_3,540,000	\$110,000	\$( <u>3,430,000)</u>
i) Sales Variance				

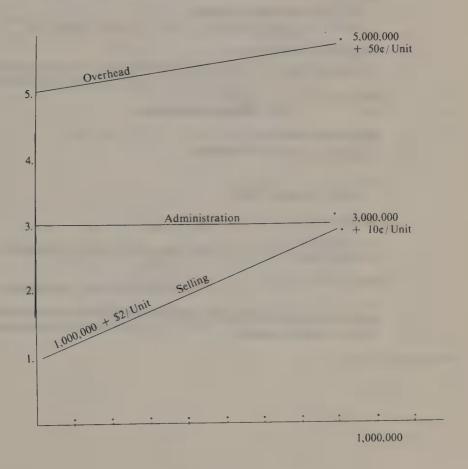
#### (6) (b)

Sales Variance	
Increase in market 10% (12,000,000 — 10,000,000) = 200,000 × \$25	\$ 5,000,000
Decrease in market share $(1,200,000 - 1,100,000)$ = $100,000 \times $25$	(2,500,000)
Decrease in selling price 1,100,000 (\$25 — \$23)	(2,200,000)
Sales variance	\$ 300,000

#### ii) Variable Manufacturing Expenses

	Due to marketing Increase in market $-200,000$ ( $$6+$5+$0.50$ ) Decrease in market share $-100,000 \times $11.50$				
	Due to manufacturing Miscellaneous variances	\$\frac{210,000}{(940,000)}			
	iii) Variable Selling and Administration Expenses				
	Due to marketing Increase in market $-200,000 \times \$2.10$ Decrease in share $-100,000 \times \$2.10$	\$ (420,000) <u>210,000</u> \$ (210,000)			
	Due to price and efficiency 1,100,000 + 40,000	(1,140,000) \$(1,350,000)			
(4)	(c) Increase In Contribution Increase in Market				
	Sales \$5,000,000 Variable manufacturing 2,300,000				
	Variable, selling and administration	\$ 2,700,000 420,000 \$ 2,280,000			
	Decrease in market share				
	Sales         \$2,500,000           Variable manufacturing         _1,150,000				
	Variable, selling and administration	\$ 1,350,000 <u>210,000</u> \$(1,140,000)			
	Due to increased sales	\$ 1,140,000			
	Decrease in selling price	(2,200,000)			
	Manufacturing variances	(1,060,000) 210,000			
	Selling and administration	(1,140,000)			
		\$(1,990,000)			

- (3) (d) Based on part (c), the increased unit sales reflect an increased market but reduced market share with a net increase of \$1,140,000 before decreased selling price: contribution increased by \$1,140,000 offset by reduced unit selling price yielding a net reduction in contribution of \$1,060,000. Manufacturing had a favorable variance in variable expenses of \$210,000: Selling and administration had an unfavorable variance of \$1,140,000.
  - Summary: presumably decreased selling price and increased marketing costs incurred to increase sales amounted to more than the increased contribution from sales increases. By comparison, the fixed variances are insignificant.
- (2) (e) Introduce monthly reports showing flexible budget and actual contribution and variances as in part (a).



#### Q.3 Issues to be discussed

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Management Accounting:

Monthly segment, direct cost/contribution statements required.

Flexible budgeting.

Treatment of standard costs and inflation and variances.

Selling price per unit unchanged and based on standard cost plus mark-up and thus increased cost of production not passed on.

Need for job costing for product line evaluation and pricing decision.

#### Planning:

Need for budget. Severe liquidity position due to lack of planning with high dividends and capital expenditure. Need for financial management.

#### Management Control System:

Store managers' costs mainly fixed: he controls volume, product mix and suggested retail price. Therefore, transfer at direct cost and evaluate as contribution center.

Budget planning - as a target

- for evaluation and monitoring

Management Accounting
Direct costs/contribution analysis
Process/product cost

Management Control System
Outlets contribution centers

Remuneration of managers and profit sharing

The \$100,000 difference in cost of sales reflects error probably in adjusting for increase in closing inventory but reflects on accountant.

President must concentrate more on accounting results and operating statements.

There are numerous issues which can be addressed. Students must develop an articulated report and will not be expected to cover all issues but to analyse rigorously those which they do address.

#### Data on which Financial Statements were prepared

Sales	1981	1982	1983
Bread	750 × 1.50 1,125	1,000 × 1.50 1,500	1,500 × 1.50 2,250
Confectionery	-	200 × 5 1,000	600 × 5 3,000
Total	1,125	2,500	5,250

Selling price per unit has not changed, presumably based on standard cost plus markup. Since gross profit percentage remains at 30%, pricing must be based to give 30% gross profit on standard cost.

#### Standard Costs/Unit

Bread	Material Labor Overhead	0.55 0.30 0.20	Confectionery	M L OH	1.00 0.75 0.50	
1982 SC Bread	d M L OH	1,000 × 0.55 1,000 × 0.30 1,000 × 0.20	Confectionery	200 × 200 × 200 ×	2.50	750 800 300
1983 B Bread	M L OH	1,500 × 0.55 1,500 × 0.30 1,500 × 0.20	Confectionery	600 × 600 × 600 ×	2.50	1,425 1,950 600

100

**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### MANAGEMENT ACCOUNTING 512 EXAMINATION March, 1985

Marks Time: 3 Hours

NOTE: Your answers should be presented in good professional form. That is, they should be well articulated, integrated, and concise. Conclusions should be based on substantive content and convincing logic: simply listing points is inadequate. Exhibits should be logically presented and clearly labelled.

- 20 Q.1
  - (10) (a) Discuss the relative merits and the applications of "direct" and "full" cost in management accounting systems.
  - (10) (b) Discuss the various types of Responsibility Centers and the factors to be considered in selecting the appropriate responsibility center in an industrial corporation.
- 30 0.2 Canadian Electronics Limited (CEL) manufactures a wide range of industrial and consumer products. Division A had been established in the 1960s to manufacture fractional electric motors. In 1980 the president of CEL, Max von Blitz, decided to phase out Division A, since he believed its old and obsolete equipment was no longer competitive. Division A manager had never requested any funds for capital expenditures: it was a joke in CEL that the Division A manager would rather repair an exploded machine than replace it. Consequently, Max established Division B in another province to develop and produce fractional electric motors using the very latest computer-assisted, automated equipment. By 1983, it became apparent that Division A had retained most of its market and Division B was selling, mainly to U.S. and European customers, motors specially designed by its engineering department. Max was surprised to see from the 1983 operating statements (Exhibits I and II) that Division A continued to be the more profitable. The Division B manager had requested significant funds for expansion and Max wondered whether these funds should perhaps go to Division A. The division managers are responsible for meeting their budgeted profit each year but have to obtain Max's permission for all capital expenditures. Max was further concerned about CEL's overall corporate return on invested capital which had been slipping in recent years and was now below CEL's cost of capital of 10%.

Max called in a management accounting consultant, Horatio Feldspar, to advise him. Max asked Horatio whether the divisional managers' bonuses, based on increase in divisional profit over budget, were fair.

#### **REQUIRED:**

As the accounting consultant, prepare the following:

- (13) (a) A statement showing the following performance indices for each division:
  - i) Return on divisional investment.
  - ii) Return on operating assets (inventory plus land, buildings and equipment).
  - iii) Return on divisional investment at replacement cost.
  - iv) Residual income based on cost of capital and "divisional investment".
  - (5) (b) Interpret the comparative performance of the two divisions from the data you have.
  - (5) (c) Should Division A be divested, provided with more capital, or allowed to run down? Give reasons supported by quantitative analysis.
  - (7) (d) Advise Max on an appropriate system of divisional evaluation and manager bonuses and how funds should be allocated to divisions for capital expansion.

#### Exhibit I Divisional Balance Sheets As at December 31, 1983 \$000's

	Division A	Division <b>B</b>
Cash	\$1,000	\$10,000
Accounts receivable	500	5,000
Inventory	1,500	5,000
	\$ 3,000	\$20,000
Accounts payable	4,000	2,000
Working capital	\$(1,000)	\$18,000
Land	\$ 1,500	\$ 2,000
Buildings and equipment	10,000	35,000
Accumulated depreciation	(9,500)	(5,000)
"Divisional investment"	\$ 1,000	\$50,000

Division A Division

#### **Additional Information**

- 1) Replacement cost of buildings and equipment in similar state of depreciation. \$25,000 \$36,000 Land retains its Balance Sheet value.
- 2) Buildings and equipment depreciated straight-line over 10 years.
- 3) Inventory is valued at FIFO.

## Exhibit II Divisional Operating Statements For the year ended December 31, 1983 \$000's

	Division A	Division B
Sales	\$80,000	\$110,000
Cost of sales:	624 000	C 22.000
Labor	\$24,000 27,000	\$ 33,000 21,000
Overhead: variable	15,500 (Note I)	4,000
fixed	2,000 (Note 2)	39,000 (Notes 2,
	\$68,500	\$ 97,000
Operating profit:	\$11,500	\$ 13,000
Selling	4,900 (Note 3)	7,000
Administration	1,600 (Note 4)	2,000
Divisional profit	\$ 5,000	\$ 4,000

#### NOTES:

- (1) Includes excess maintenance costs of \$11,000.
- (2) Separable if division divested.
- (3) Variable is 5% of sales and balance is fixed.
- (4) All fixed and includes an allocation of head office expenses equal to 10% of operating profit.
- (5) Includes research and development costs of \$28,000.

Q.3 J.I. Bullmoose, president of Moosepasture Conglomerate Limited (MCL) wondered whether it had been such a good idea to decentralize the Industrial Products Division. The year 1983 had not been a good one for MCL, and 1984 was commencing with very soft markets. As J.I. was reluctant to become involved in interdivisional disputes, he had called in Chuck Green, an organizational consultant, to review the situation.

"A major factor in our past success has been our R & D capacity in the communication field", J.I. opened. "We have always had to keep the R & D Division on a tight rein or they would drain us to bankruptcy. In 1970 we established the Industrial Products Division (IPD) to manufacture and market products developed by the R & D Division. Once the technical and commercial viability of a new product was established, the product was handed over to the IPD people. Two problems arose: first, constant squabbling between IPD and R & D over who should be responsible for product modification; second, our corporate profitability was unsatisfactory. The R & D Division is set up as a cost center with an annual budget set by myself. As the product R & D costs were not passed on to IPD we found that while IPD earned a fair return on its investment, it was not recouping the product R & D costs. So, last year we decided to set up the R & D Division as an investment center just like all the other divisions. R & D was free to budget their level of R & D and split between research and development. They were free to provide R & D service to other divisions and also to outside corporate customers. Its revenue was about equally divided between the sale of R & D services and new products which also could be sold outside. For security and co-ordination reasons, all outside sales by R & D have to be reviewed by the Head Office R & D Vice-President. Sales must be made inside if price and terms can be matched to those offered externally."

"The system sounds very typical to that used by many large corporations. What problems are you experiencing?" asked Chuck.

"Well, two recent incidents have created considerable tension between the division managers. Last October R & D signed a product development contract with a Japanese firm to design a satellite laser relay station for the Japanese. The work will effectively tie up the R & D consulting capacity for a good year. Our Guidance Division urgently required technical development assistance last month on a laser bomb guidance system for the Argentinians. R & D did not have the time and so Guidance had to obtain the assistance from a U.S. firm at a hefty price."

"Do you have any figures on these contracts?" enquired Chuck.

"Yes, here is a summary you can review (Exhibit I). Guidance was concerned also about security, with an outside foreign firm having access to our technology."

"The second issue involved a radically new home satellite T.V. receiver system which should market for less than \$500. R & D has invested a lot in this system and as it does not have the production capacity it decided to lease the patent rights on a royalty basis. IPD was excited over the system and had budgeted in anticipation of producing and marketing it this year. However, R & D received what it considered a superior offer from a German firm and signed a five-year agreement with them. I heard the uproar when IPD heard of the contract but did not intervene as I did not wish to undermine our management control system. The figures I have on the negotiations are here." (Exhibit II)

"How much of IPD's business is with R & D?" Chuck asked.

"About 20% of R & D's sales are to IPD. Here are the operating statements of the two divisions in 1983 (Exhibit III). I am soon going to have to address the issue of whether the time has come to divest ourselves of IPD, since they continue to lose money."

#### REQUIRED:

As Chuck Green, draft a report to J.1. Bullmoose on the issues raised in the case. The report should be in proper format with attention to structure, substance and logic. HINT: you should incorporate in your report a discussion, among other things, of the following: i) the Guidance Division contract

- ii) the home satellite receiver contract
- iii) the divestiture of IPD
- iv) the MCL management control system.

#### Exhibit I R & D Division Satellite Laser Relay Station Development Contract for the Japanese

Contract price	25,000,000
Costs:	
Direct - material - labor Overhead - variable - fixed (allocated) Sub-contracts Contingency	6,000,000 10,000,000 1,000,000 2,500,000 2,500,000 500,000
Profit: Contract sale price to Japanese	22,500,000 2,500,000 25,000,000

410

\$

## Exhibit I (Continued) Preliminary Estimate by R & D Division on Laser Bomb Guidance System Development

		\$
Direct materials Direct labor Overhead - variable     - fixed Sub-contracts Contingency  Profit, 10% of sale price		1,000,000 9,000,000 900,000 1,500,000 800,000 300,000 13,500,000 1,500,000
Bid submitted by R & D to Argentina		15,000,000
Contract given to U.S. firm for		17,000,000
Exhibit II		
IPD Evaluation of Home Satelli	ite System	
	\$	\$
Cost incurred by IPD to date:  R & D - variable - fixed  Marketing - variable - fixed  Future development costs:  Marketing - variable	300,000 150,000 600,000 100,000	1,150,000
- fixed  Production costs:  Per unit - direct material - labor - overhead - variable - fixed (allocated)	100,000 100 200 75 25 400	850,000
Production cost of estimated sales over 5 years: 1 million units at \$400 Total cost of estimated sales Revenue 1 million units at \$425 5-year divisional profit		400,000,000 402,000,000 425,000,000 23,000,000

#### R & D Division Contract with German Firm

#### Five-year royalty agreement:

Royalty of \$20 per system, sold with minimum royalty of \$5 million per year.

Exhibit III
Divisional Operating Statements
For the year end December 31, 1983
\$000's

	R & D Division	Industrial Products Division
	\$	\$
Sales	30,000	_59,000
Cost of sales: Material Labor Overhead - variable - fixed	3,000 14,000 500 	30,000 16,500 2,500 2,000 51,000
Operating profit Selling Administration*	11,000 500 3,600	8,000 2,000 7,000
Divisional profit	6,900	(000,1)

<sup>\*</sup>Includes head office charge of 10% on sales.

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**END OF EXAMINATION** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## MANAGEMENT AUGUSTING 512 HEADTHATTEN March, 1985 LUANTEEL'S COMMENTS

#### **General**

The overall quality of examination answers in this course continues to improve. Even more students could improve their marks by paying attention to examination technique.

#### Specific

- Q.1 (a) Well answered in general. Students were asked to focus on management accounting but many addressed financial accounting and were weak on application.
  - (b) Most students identified four basic responsibility centers but were weak in specific identification of factors in selecting appropriate center. Also students did not emphasize the need for managers to be able to control factors they are responsible for. Some confused themselves in referring to "inputs" and "outputs" instead of expenses and revenues, e.g., "inputs can be measured in an expense center but not output".
- Q.2 This question was generally well answered. A number of students adjusted "Dividend Profit" to determine indices required in 2(a). While this was not what was required, the marking was lenient as students were trying to present a more relevant index. Some fifth year students are unable to calculate percentages, e.g., showing 8% as .08 and inverting numerator and denominator. A number of students did not identify the behavioral factors in the system, e.g., that the Division A manager would not replace assets as that would tend to reduce very high ROI. In part (d) students did not emphasize residual income as a remedy for this dysfunctional behavior.
- Q.3 Most students presented answers in reasonable report format and attempted to present reasonable professional logic in their analysis. The calculations presented difficulty to many students. Many would benefit from paying attention to preparing a skeleton answer before writing the case report. They should also address both the symptom and system level of issues.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### MANAGEMENT ACCOUNTING 512 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

20 Q.1

(10) (a) Full cost conventional method is used in both financial and management accounting.

In management accounting, direct cost is associated with the relevant costs for decision-making. Full cost in decision-making can lead to suboptimal decisions.

Fixed costs are associated with sunk costs and capacity costs: capacity costs are relevant to decision of maintaining capacity for the period. Direct costs are relevant to operating decisions once capacity has been decided.

Direct costs refer to variable product costs and do not include relevant variable costs such as variable selling costs.

Direct costs are relevant for current operating decisions such as volume, product mix, pricing, etc.

Direct costs such as variable factory overhead may be difficult to determine.

Full cost may be simpler to operate and be more comparable with other companies.

NOTE: Answer should: (1) define terms; (2) examine pros and cons of each; (3) indicate applications; and (4) arrive at a reasoned conclusion. There is not a uniquely correct conclusion.

414

(10) (b) Cost Center: Manager should have control over costs which should not include costs allocated from elsewhere. Emphasis is on cost control; quality may suffer if not monitored.

Revenue Center: Manager responsible for revenue and costs usually controlled by means of flexible budget.

**Profit Center:** Manager has control over both revenue and expenses and is responsible for profit; he can trade off expenses vs. revenue.

Contribution Center: Same as profit center, except contribution used as measure.

Investment Center: Manager has control and responsibility for revenue, expense and capital investment. Investments monitored by head office through budget and AFE (Authority for Capital Expenditure). Evaluated in terms of ROI or Residual Income.

The centers reflect successive decentralization. Manager should only be accountable for items which he can control. Bonus based on performance against measure, cost vs. budget, revenue vs. budget, profit vs. budget, contribution vs. budget and ROI or Residual Income vs. target or budget.

Factors to be considered are degree of decentralization desired, control manager has over factor, goal congruence and predictable behavioral effect on manager.

MCS must be designed to fit situation.

30	Q.2 (13)	(a)		Division A	Division H
	(3)	i)	Divisional profit	5,000	4,000
	(-)	,	Divisional investment ROI	; 1,000 500%	50,000 8%
	(3)	ii)	Divisional profit (Acceptable on gross basis only Operating assets	y) 5,000 ÷	4,000 ÷
			Inventory and land, buildings and equipment ROI	3,500 143%	37,000 11%
	(3)	iii)	Divisional profit	5,000 ÷	4,000 ÷
			Replacement cost ROI	25,500 20%	56,000 7%
	(4)	iv)	Divisional profit Imputed interest	5,000	4,000
			10% × 50,000 10% × 1,000	100	5,000
			Residual Income	4,900	(1,000)

(5) (b) Division A manager is working the system by minimizing his investment base.

Division B manager is expensing heavy R & D.

Both divisions are making large contributions if you regard R & D as a capital investment. Division B makes a much larger contribution.

Division A appears to be avoiding capital replacement through maintenance.

Division B is much more labor efficient.

(5)(c) If Division A is divested, a contribution of \$9,500,000 would be lost. Could these sales be picked up by Division B?

Assume Division A equipment is replaced. Adjust profit.

		OR
	\$000's	
	\$	\$
Division A profit	5,000	-
+ Excess maintenance	11,000	11,000
- depreciation on replacement		
adjustment	(2,000)	(2,000)
	14,000	9,000
Replacement cost	25,000	25,000
Working capital, say	15,000	5,000
(Bonus mark for recognition)	40,000	30,000
ROI on increment	35%	

Would indicate replacement of equip	ment.		\$000's
		A \$	<b>B</b> \$
Sales		80,000	110,000
Less variable costs:			
Material		24,000	33,000
Labor		27,000	21,000
Overhead	(4,500 or)	15,500	4,000
Selling		4,000	5,500
		70,500	63,500
Contribution		9,500	46,500
Estimated			
Excess maintenance		11,000	(\$9,000 might be more
Normalized contribution		20,500	appropriate)

NOTE: A number of alternative analyses and assumptions would be acceptable. Students must give supported conclusion on Division A.

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(7) (d) Set divisions up as Residual Income Centers and allocate expansion funds based on hurdle rate, i.e., funds should be given to more profitable divisions. Residual Income preferable if some divisions have ROI in excess of hurdle rate.

Consider using replacement value of production assets to avoid leverage from old equipment.

Include in investment base items to be controlled by Division Manager, such as inventory, but not cash which should be transferred to Head Office.

Bonus should be based on Residual Income over budget.

Q.3 Answer should be in report format with issues, analysis, plan of action, and exhibits.

#### Issues:

1) Transfer pricing and placing bomb contract externally

contribution analysis

2) Should IPD be divested

contribution analysis

3) Management control system

transfer pricing

divisional evaluation

R and D structures

4) Management accounting system

direct cost

contribution analysis

reporting

bidding

#### Conclusions

#### Exhibits:

- 1) Bomb contract contribution
- 2) Home satellite contribution
- 3) Divisional contribution

Answer must show understanding of contribution analysis and changes needed in MCS and MAS.

Schedule I Variable Costs to MCL per Exhibit I

	Bomb Internal	Bomb and Satellite External	
	S	\$	
Direct material Direct labor Variable overhead Sub-contracts	1,000,000 9,000,000 900,000 800,000	6,000,000 10,000,000 1,000,000 2,500,000	
Total incremental (relevant) costs Revenue Contribution from Japanese U.S. Firm charge for bomb development Variable cost to MCL	11,700,000	19,500,000 25,000,000 5,500,000 17,000,000 11,500,000	

Therefore, cheaper for MCL to do bomb externally i.e. \$200,000 less relevant cost. Consider contingencies.

#### Alternative Solution

		Bomb Internal Contribution
	\$	\$
Variable Costs: Material Labor Overhead Sub-contracts Total variable Contract price Contribution	6,000,000 10,000,000 1,000,000 2,500,000 19,500,000 25,000,000 5,500,000	1,000,000 9,000,000 900,000 800,000 11,700,000 15,000,000 3,300,000
If bomb R&D external Incremental variable costs U.S. firm less VC above Incremental VC Relay contribution Incremental contribution	17,000,000 11,700,000 5,300,000 5,500,000 200,000	

NOTE: Internal bomb R&D and relay station are mutually exclusive (capacity contraint).

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### Schedule 2 Relevant Costs for IPD to Produce per Exhibit II

Cost incurred on sunk costs are not relevant.

Future relevant costs for IPD to proc Variable development Variable production	duce:	\$ (850,000)
	\$	
Direct material	100	
Direct labor	200	
Variable costs	<u>75</u>	
	375	
Selling price	425	
Contribution/unit:	50	
\$50 × 1 million	_	50,000,000
5 year contribution before tax		49,150,000
Royalty minimum from Germans		25,000,000
Equivalent units $$20 \times X = $49,150,0$ X = 2,457,500 units:	00 say 2.5 million units	

Are fixed costs all really fixed?

Based on above analysis, if sales are less than 2.5 million units over the next five years the contribution is greater to have IPD produce. Consider alternative use of capacity i.e., address opportunity cost. Issue then is whether the approximately \$10,000,000 per year from IPD producing exceeds the opportunity cost of the capacity by more than the \$5,000,000 royalty assuming sales of 1,000,000 units by IPD over the five years. Analysis changes if Germans exceed minimum.

Schedule 3
Divisional Combined Contribution from Exhibit III

	R & D	IPD \$	TOTAL \$
Sales	30,000	59,000	89,000
Variable costs:			
Material	3,000	30,000	33,000
Labor	14,000	16,500	30,500
Overhead	500	2,500	3,000
	17,500	49,000	66,500
Contribution	12,500	10,000	22,500
Division expenses:			
Selling	500	2,000	2,500
Administrative*	600	1,100	1,700
	1,100	3,100	4,200
Contribution to Head Office	11,400	6,900	18,300

<sup>\*</sup>Eliminate 10% allocation \$3,000 and \$5,900.

Both divisions are making significant contributions. Divestiture decision depends on opportunity cost of using facilities elsewhere.

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**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## AUDITING 517 EXAMINATION December, 1984 Based = 1983/84 Lesson Notes

Marks Time: 3 Hours

- 15 Q.1 Mr. John Leroy, president and controlling shareholder of Leroy Company Ltd. where you have just been appointed auditor, disagrees with your decision to attend the physical stocktaking and to confirm accounts receivable. He recognizes however that inventory and accounts receivable constitute a significant part of the assets of the company. Mr. Leroy raises the following points:
  - i) Perpetual stock records are maintained in head office, for both the quantity and the value of inventory.
  - ii) The possibility of using other procedures to audit inventory and accounts receivable.
  - iii) Attendance at the physical stocktaking would only increase the audit fee and disrupt the manufacturing activities, since physical stocktaking takes place at different times in all branches, on a sampling basis.
  - iv) The internal control for accounts receivable is excellent, and confirming them could prove harmful, as the company's customers are not used to that kind of procedure.
  - v) Mr. Leroy owns 95% of the common shares of the company, the other shareholders being his wife and his son; besides, the company does not have any preferred shares and has no outstanding debt, except accounts payable in the usual course of business. In addition, accounts payable are always maintained at a minimum level, with the quick ratio always being at least 5:1.

#### REQUIRED:

- (7) (a) Explain in detail how, as a public accountant, you would deal with such a situation.
- (8) (b) In order to help Mr. Leroy understand your approach, what arguments should you present to him with regard to inventories and accounts receivable? Emphasize what compromises you would be ready to make in the circumstances.

15 Q.2 CGAs are frequently asked to perform services that are related more to accounting than to auditing functions. This is often true in the case of small businesses, partnerships, proprietorships and companies who want adequately prepared financial statements in order to obtain credit, without having to produce audited financial statements.

#### REQUIRED:

- (11) (a) State the procedures that the CGA should follow to ensure that the financial statements he has prepared present fairly the position of the enterprise, without performing an audit.
- (4) (b) What should the CGA do in order to avoid giving the impression that these financial statements have been audited?
- 10 Q.3 Often, events or transactions occur after the date of the financial statements. Answer the following questions concerning subsequent events.
  - (4) (a) What is the general responsibility (if any) of the auditor to disclose such events or transactions?
  - (3) (b) During what time period should the auditor consider subsequent events?
  - (3) (c) Give three separate examples of events or transactions that can occur after the balance sheet date.
- 24 Q.4 Mr. Lambert is a very wealthy client of Mr. Black, CGA, whom he has requested to investigate Gold Company Ltd., whose auditor is also a CGA, in order to determine whether he should consider acquiring a majority interest in that company.

Mr. Lambert gives Mr. Black the following information pertaining to Gold Company Ltd.:

- The company is a large department store located in the downtown area of a major Canadian city.
- ii) The company owns a warehouse on a fairly large piece of land outside the city limits. Mr. Lambert is particularly interested in this property as he foresees the possibility of developing it in a few years, due to the rapid expansion of the city.
- iii) The company is owned by a family and, for the last few years, it has experienced working capital difficulties due to mismanagement by the family members.

Continued...
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- iv) Mr. Lambert has prepared a stock purchase contract that would allow him to acquire a controlling interest (75%) in the company, and the owners have agreed to accept this contract.
- v) The buildings of the company were appraised, and their net value was assessed at \$2,000,000, whereas their book value is \$1,500,000. The contract takes this increase into account.

#### REQUIRED:

- (6) (a) What initial steps should be undertaken by the CGA due to the special nature of his investigation?
- (18) (b) List and briefly discuss six procedures that should be followed in order to give sound advice to his client.
- 12 Q.5 As a CGA working as a municipal auditor, you are frequently asked to conduct seminars on that topic. During one of your recent seminars to the students of Prestige University, a student asked you the following:
  - (6) (a) What are the main duties of an auditor working in the field of municipal auditing?
    - (6) (b) What are the special features present in a municipal audit that are not found in a standard commercial audit?

#### REQUIRED:

Answer the two questions asked by the student.

Q.6 Mr. Blackwood, CGA, is planning the audit of Prestige Ltd., an importing distributor. When Mr. Blackwood contacted Mr. Burn, president of Prestige Ltd., the latter disclosed that he had completed the conversion to electronic data processing and stated: "Now that my company is fully computerized, I expect my audit fees to be lowered considerably."

#### REQUIRED:

Comment on Mr. Burn's statement and explain how your audit will evolve during the first years of implementation.

10 Q.7 A capital lease is a lease that, from the point of view of the lessee, transfers substantially all the benefits and risks incident to ownership of property to the lessee.

In order to distinguish between assets that the enterprise owns and those that it only has the right to use, leased assets under capital leases would be disclosed separately, and the related lease obligations would be separated from other long-term obligations.

#### REQUIRED:

List all the information that must be disclosed in the financial statements of an enterprise, in connection with assets leased under capital leases.

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END OF EXAMINATION

#### CERTIFIED PAL ACCOUNTANTS' ASSOCIATION OF CANADA

## AUDITING 517 EXAMINATION Based on 1983/84 Lesson Notes December, 1984 EXAMINER'S

#### General

The overall pass rate for this examination is relatively high. This might be because many students were not writing the examination for the first time.

#### Specific

- Q.1 This question did not create any ambiguity. Many students received full marks.
- Q.2 Overall, the question was well understood and well answered. The answers were specific and well structured, and the results were good.
- Q.3 Most students answered part (a)(i) very well. However, very few students referred to the reservation in the auditor's report.

In part (b), most students knew during what time period subsequent events should be considered, but only a few discussed what must be done if a material event comes to the auditor's attention before the report is issued.

- Part (c) was very well answered.
- Q.4 This is the type of question where the students' judgment is no doubt more important than their technical knowledge. Some students are comfortable with this type of question while some others appear to become helpless. The answers were extremely varied, some receiving full marks and others receiving very few or no marks.
- Q.5 Part (a) was generally well answered. However, some students mentioned items which should have been included in their answer to part (b).
  - Part (b) was poorly handled. Instead of discussing the special features present in a municipal audit that are not found in a commercial audit, a number of students discussed the differences between municipal accounting and commercial accounting.
- Q.6 The components of the answer were generally well expressed, except for the following two:
  - Implementation costs are higher for the first year;
  - The auditor has to hire more specialized and experienced personnel.
- Q.7 Answers to this question were generally very inadequate and received very low marks.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION W CANADA

## AUDITING 517 EXAMINATION December, 1984 SUGGESTED SOLUTIONS Based on 1983/84 Lesson Notes

Marks Time: 3 Hours

- 15 Q.1 Source: Lesson Notes, Lessons 1, 2 and 3.
  - (2) (a) Nowadays, attendance at the physical stocktaking and confirmation of accounts receivable are considered indispensable auditing procedures in the formation of a valid opinion, unless inventory and accounts receivable are not material, which is seldom the case.
  - (2) To express a reservation in the auditor's report indicating that the auditor did not follow these two procedures would not be acceptable, since this would be equivalent to expressing an opinion while at the same time saying that this opinion cannot actually be supported.
  - (2) The Leroy Company Ltd. has only three related shareholders. The fact that one of these shareholders controls the company does not change anything. In addition, even though the company does not have any preferred shares and has no outstanding debt, the auditor would not be justified in issuing a report that is not supported by standard auditing procedures, i.e., one which states that the client did not limit the audit.
    - (b) The preceding arguments should be clearly presented to Mr. Leroy. However, Mr. Black would probably want, in the present circumstances, to raise the following issues:

#### (4) Inventory

If the company utilizes perpetual stock records that take into account the quantity and value of the goods in inventory, and if the internal control is satisfactory and includes continuous updating and reconciliations of inventory to records, this auditing procedure will not be as awkward as Mr. Leroy expects. Attendance at stocktaking cannot, in this case, be interpreted as requiring the company to perform physical counts at a fixed date. It means that the auditor be granted the freedom to perform spot checks and make rotational visits to the branches to reconcile the physical inventory with the records at head office. He would review periodically the control system and the

measures taken to correct variation between physical inventory and control records. All of these steps are in addition to other usual auditing procedures for inventory.

#### Accounts receivable (4)

If the confirmation request is liable to be misinterpreted by some of the customers of the company, these customers can be exempted from the process, provided the accuracy of their accounts can be satisfactorily proven through other procedures, and the number of these customers, as well as the amount of their accounts, is not too high.

On the other hand, Mr. Black can question the likelihood of negative reaction on the part of customers, as these will receive, instead of the usual document, a confirmation request stating clearly and in simple terms that it is not a request for payment and deals only with the usual financial statements for that year.

Accounts receivable frauds can exist even if the internal control is good and it is in the best interest of the company to accept direct confirmation procedures.

- Q.2 Source: Lesson Notes, Lesson 7. 15
  - (11) (a) To ensure that the financial statements he has prepared present the situation of the enterprise fairly, even though he did not perform an audit, the CGA should:
    - Prepare a trial balance of the General Ledger to see 1) if the accounts balance.
    - Reconcile the bank balances; check the bank statements 2) and obtain a confirmation from the bank if he has reason to question the debt owed to the bank or the bank balance.
    - Verify or prepare the trial balance of accounts 3) receivable and determine whether the allowance for doubtful accounts is sufficient.
    - Check for possible accrued payables. 4)
    - Verify inventory 5)
      - Check the count sheets. i)
      - Check prices. ii)
      - iii) Make sure that the appropriate methods were used in connection with obsolete materials,

Continued... Page 2 of 9

- merchandise, as well as cut-offs for purchases and sales.
- iv) Make sure that methods are followed in a consistent manner.
- v) Compare the inventory figures with those of the preceding years.
- vi) Apply the Gross Profit Method.
- 6) Verify the calculations for prepaid expenses.
- 7) Verify fixed asset account and depreciation account; inquire about any changes and examine the appropriateness of the methods used.
- 8) Verify or prepare a trial balance for accounts payable, making sure that all debts are recorded by checking the vouchers that were received and paid after year-end.
- 9) Verify that long-term debt is correctly recorded and described, including payments that should be shown as current amounts and all assets offered in guarantee.
- 10) Verify revenues and expenses by comparing them with those of recent years, while making sure that trends are reasonable.
- 11) Check for accuracy and continuity in the application of Generally Accepted Accounting Principles.
- 12) Check for possible contingent liabilities or commitments.
- 13) Check for the reasonableness of owner's or partner's drawings.
- 14) Read correspondence and other such documents to discover whether any events were overlooked.

MARKS: 1 mark per item to a maximum of 11 marks.

- (b) In order to avoid giving the impression that the financial statements were audited, the CGA should:
- (2) i) Clearly state that the financial statements were not audited by issuing a comment in which he refers to himself as an accountant and not as an auditor. This comment could read as follows:

Continued...
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"I have prepared the accompanying balance sheet and statement of income from the records of (name of company) and from other information supplied to me by the company."

(2) ii) Having made the above declaration, he may prepare the financial statements on his own stationery, taking care to refer to his accountant's comments on each statement.

#### 10 Q.3 Source: Lesson Notes, Lessons 1, 2 and 3.

- (a) The primary responsibility for preparing the financial statements rests with the auditor's client; consequently, any adjustment or disclosure to be made in connection with subsequent events is also the client's primary responsibility. However, as the auditor becomes aware of subsequent events or transactions that may have a material effect on the financial statements, he is required:
- (2) i) to see that those events or transactions are given proper consideration and, where appropriate, that they are taken into account, either through an adjustment to financial statements or through footnote disclosure; and
- (2) ii) to make a reservation in his report or to disclose appropriate information, depending on circumstances, if, in his opinion, the client does not comply sufficiently with the requirements stated in (i) above.
- (3) (b) In general, the period during which subsequent events occur is the period between the date of the balance sheet and, approximately, the date where most of the important auditing procedures have been completed. This date will usually be the date of the auditor's report. In most cases, this date will coincide with the completion of the auditor's work in the client's office. However, should material events come to the auditor's attention before he issues his report, he is required to take these into consideration.

MARKS: 1 mark per item to a maximum of 3 marks.

- (3) (c) Examples of subsequent events:
  - The settlement of a fiscal dispute that would affect accrued taxes payable at year end.
  - The bankruptcy of a major customer whose account had previously been considered recoverable.

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- A substantial issue of shares or bonds with restrictive clauses.
- A merger.
- An acquisition.
- The disposition of a major investment or other significant fixed asset(s).
- The collection of a large life insurance settlement due to the death of a director.
- A major loss incurred in connection with a fire or other similar cause.
- Major changes in the administration.
- Changes in products or product line.
- Strikes.
- Unionization.
- The loss of major clients, etc.

MARKS: 1 mark per item to a maximum of 3 marks.

- 24 Q.4 Source: Lesson Notes, Lessons 8 and 9.
  - (a) Because of the specialized nature of his investigation, Mr. Black should:
  - (3) i) obtain a written agreement from Mr. Lambert detailing the scope and nature of the inquiry he is requested to perform.
  - (3) ii) contact the other CGA to request that he obtain from Gold Company Ltd. the authorization to supply any information needed relating to the affairs of the company.
  - (18) (b) Mr. Black should follow these procedures:
    - Examine the stock purchase contract prepared by Mr. Lambert.
    - Verify the financial statements by comparing them to the General Ledger.
    - Verify all General Ledger accounts.

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- Check all entries in the General Ledger, in particular, unusual entries.
- Examine the auditor's working papers to make sure that the audit was performed in compliance with Generally Accepted Auditing Standards.
- Examine the most recent internal financial statements issued after the audited statements and compare them to the General Ledger.
- Determine the reason for any material changes occurring between the date of the audited statements and the last internal financial statements. Explain and assess their impact.
- Examine assets, liabilities and transactions from the date of the last internal financial statements, to make sure that the net value did not decrease.
- Give particular attention to material assets such as accounts receivable, inventories, fixed assets, to ensure that they were properly valued. Proceed in the same manner with liabilities.
- Ensure that the Gold Company Ltd. holds all the ownership titles related to fixed assets.
- Read the minutes, correspondence, etc., in order to find proof of existence of any contracts, obligations, commitments or contingent liabilities.
- Review the appraiser's report; verify the basis on which the re-evaluation was made. Determine whether it was fair and whether the entry in the company's books is appropriate.
- Study the current administrative problems of the company and the difficulties experienced in relation to working capital. Determine whether Mr. Lambert might be able to solve these problems by hiring new administrators and obtaining the necessary working capital.
- Review the trends of the company's operations, both current and expected, taking into account the changes planned in the administration of the company (for example, excessive salaries paid to family members, etc.).
- Review Mr. Lambert's fiscal situation, and determine what impact the purchase of the company will have on this situation, while taking into account the potential development project for the land owned by the company.

- 12 Q.5 Source: Lesson Notes, Lesson 4.
  - (6) (a) Main duties of an auditor working in the municipal field
    - i) To report whether the Balance Sheet and the Statement of Revenue and Expenditure exhibit a true and correct view of the state of the municipality's affairs.
    - ii) To state, in his report, whether the accounting records used by the municipality are inadequate and to what extent they are inadequate.
      - iii) To report in what respect any disbursement or transaction is without apparent or proper authority.
      - iv) To report to the Council and to the Minister of Municipal Affairs every defalcation or similar irregularity with respect to the financial affairs of the municipality.
      - v) To ensure that the financial statements are completed on time.

#### (6) (b) Special features of municipal auditing

- i) The audit must cover all boards and commissions handling municipal funds with the exception of boards which are covered by separate statutory provisions for the appointment of auditors. The municipal auditors examine the records of such boards as local utilities commissions and hospital boards.
- ii) All vouchers must be examined for approval by Council or other authority, and for proper accounting classification and actual amount of payment (when internal control is adequate, vouchers can be examined on a sample basis).
- iii) Tax levies must be verified against the assessment total. Arrears of taxes must be reconciled with book records which show:
  - last year's arrears;
  - this year's levy and other additions for such items as penalty and interest, etc.;
  - this year's payments and cancellations;
  - balance showing this year's arrears.

- 14 Q.6 Source: Lesson Notes, Lessons 5 and 6.
  - (4) In the year of the conversion, the hours expended on the engagement and the audit fee can be expected to increase, due to the necessity of evaluating the new system.

In subsequent years, a decrease can be expected, due to the following factors:

- (3) (a) improvement in the internal control system; and
- (3) (b) the auditor can rely on the computer for checking trial balances, selection of accounts receivable for confirmation, etc.
- (4) However, costs may not decrease a great deal since one realizes that the auditor may have to use highly qualified personnel.

NOTE: In the light of some unsuccessful conversions, this question could be answered from the opposite point of view.

10 Q.7 Source: Lesson Notes, Lesson 10.

The following information should be disclosed:

The gross amount of assets under capital leases and related accumulated amortization should be disclosed. Disclosure of leased property and accumulated amortization by major category, e.g., land, buildings, machinery, may be desirable.

Obligations related to leased assets should be shown separately from other long-term obligations. Particulars of obligations related to leased assets, including interest rates and expiry dates, should be shown separately from other long-term obligations. Significant restrictions imposed on the lessee as a result of the lease agreement should be disclosed. It may be desirable to disclose the existence and terms of renewal or purchase options that are not included in the computation of minimum lease payments.

Any portion of lease obligations payable within a year out of current funds should be included as current liabilities.

Disclosure should be made of the future minimum lease payments in aggregate and for each of the five succeeding years. A separate deduction should be made from the aggregate figure for amounts included in the minimum lease payments representing executory costs and imputed interest. The resultant net amount would be the balance of the unpaid obligation.

The amount of amortization of leased property included in the determination of net income should be disclosed separately or as Continued...

part of depreciation and amortization expense for fixed assets. Disclosure should also be made of methods and rates of amortization.

Interest expense related to lease obligations should be disclosed separately, or as part of interest on long-term indebtedness.

It may be desirable to disclose separately the amount of contingent rentals included in the determination of net income and to disclose the basis of determination of such rentals.

In order to permit an assessment of commitments under lease obligations, it may be appropriate to disclose the amount of future minimum rentals receivable from non-cancellable sub-leases.

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END OF SOLUTIONS

## AUDITING 517 EXAMINATION December, 1984 Based mm 1984/85 Lesson Notes

#### Marks

Time: 3 Hours

11 Q.1 Auditing standards are different from auditing procedures.

Auditing standards relate to the auditor's qualifications,
the performance of the examination and the preparation of the
report. Auditing procedures, on the other hand, are the specific
acts or steps performed by the auditor to attain the objectives
in a particular audit engagement.

#### REQUIRED:

Outline in detail Generally Accepted Auditing Standards.

Q.2 A number of computer-assisted techniques, while occasionally of use to the external auditor, tend to be applied primarily by internal auditors.

The techniques of most use to the external auditor tend to be one-time applications as part of the annual financial statement reporting requirement. Even though the application may be run at different times over the course of the year or may cover an entire year's transactions, the client data file or program being audited is frozen at a point in time while the audit review is conducted.

By contrast, internal audit considerations are usually of an ongoing nature without particular regard to year-ends. Therefore, most of the techniques are performed in a "continuous audit" environment. Audit evidence is extracted concurrently with the regular processing of accounting transactions. A few of the techniques, while not continuous auditing applications, are ones which are too time-consuming to be of major use to the external auditor. Because of lower materiality criteria and wider management audit responsibilities they may, however, be of use to the internal auditor.

#### REQUIRED:

- (19) (a) Present, discuss and explain commonly used computer-assisted audit techniques for internal audit.
- (5) (b) Discuss the relevance of these techniques to the external auditor.

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10 Q.3 The utilization of analytical review as an audit technique is based upon the premise that the study and evaluation of the inter-relationships between financial and non-financial factors provides useful units of information which can be used by the auditor to support and assist in the audit function.

In order to utilize analytical review, the auditor should understand the components which make up the analytical review process.

#### REQUIRED:

List and discuss the five components which make up the analytical review process.

While the inventory of stock-in-trade as set out in the financial statements is primarily the responsibility of management, auditors cannot ignore their responsibility to satisfy themselves as to the validity of the client's representations as to the inventories and of the inventory records. In brief, while auditors do not take, determine or supervise the inventory, they must be reasonably satisfied as to the physical existence and condition of the goods, the ownership, the pricing and the arithmetical accuracy of the calculations.

#### REQUIRED:

- (12) (a) Comment on the auditor's attendance at physical stocktaking with respect to each of the following:
  - i) responsibility for the validity of the inventory figure;
  - ii) specialized technical knowledge required to establish the existence of goods of a specified quality, grade and condition;
  - iii) extent and procedures of inspection.
- (3) (b) If the auditor is not satisfied as to the physical existence, ownership and the basis of valuation of the inventory, what action should be take?
- 20 Q.5
  - (1) (a) The review of internal control is the first part of the study of internal control referred to in examination standard (ii). What is the purpose of the review of internal control?
  - (3) (b) What does the review of internal control consist of?

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- (2) (c) It is important that the auditor prepare and retain a record of information concerning the particular systems of internal control on which he relies. Explain why.
- (2) (d) What are the common techniques used to record information relating to the system of internal control?
- (3) (e) The second part of the study of internal control is the preliminary evaluation. What considerations does this evaluation involve?
- (1) (f) The third part of the study of internal control is compliance procedures. Why should the auditor conduct compliance procedures?
- (5) (g) Compliance procedures may be conducted at an interim audit visit. Normally, the auditor would extend these compliance procedures to cover the latter part of the year at an audit visit after the year-end, unless there is insufficient time between the year-end and the date by which the auditor's report is required. In this case the auditor must be satisfied that he has sufficient appropriate audit evidence to support the content of his report. What factors must be considered to satisfy the auditor in that respect?
- (3) (h) Several factors affect compliance procedures. The auditor recognizes that deviations from prescribed procedures may be affected by those factors. What are those factors?
- 15 Q.6 H Company buys crude oil from a wholesaler, processes it and sells it to retail customers. You are requested to audit the accounts receivable of the company. Additional information is provided below:

The company has 50 routes: each route consists of 100 to 200 accounts, the number that can be serviced by an employee in a day.

The employee enters cash collections from each customer on a form serving as a record book for each route. Mail remittances are posted in the route record books by office personnel. Individual statements of account are photocopied and left in the customers' mailboxes with the next delivery. At the end of the month the statements are priced, extended and footed.

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The statements are reviewed by the office manager, who prepares a list of all accounts with 90-day balances or older. The list is used for intensive collection action.

The audit program used in prior years for the selection of accounts receivable for confirmation stated: "Select two accounts from each route, one to be chosen by opening the route book at random and the other as the fourth item on each list of 90-day or older accounts."

Your review of the accounts receivable leads you to conclude that statistical sampling techniques may be applied.

#### REQUIRED:

- (5) (a) It is said that statistical sampling techniques do not preclude the need for auditors to exercise their professional judgment in evaluating a client's accounting records. What then is the purpose of statistical sampling techniques?
- (4) (b) Explain why the audit procedure used previously by the Company for selection of accounts receivable for confirmation, would not produce a valid statistical sample.
- (3) (c) What are the audit objectives in selecting 90-day or older accounts for confirmation? Can the application of statistical sampling techniques help in attaining these objectives? Discuss.
- (3) (d) Assuming that the company has 10,000 accounts receivable and that your statistical sampling discloses 6 errors in a sample of 200 accounts, is it reasonable to assume that 300 accounts in the entire population are in error? Explain.
- Q.7 The auditor's responsibilities in expressing a reservation of opinion in his audit report are established in reporting standards (ii) and (iii).

The auditor must exercise judgment as to whether a reservation of opinion is necessary and, if so, what type of reservation is appropriate in the circumstances.

#### REQUIRED:

What circumstances lead the auditor to express a reservation in his report? Specify the type of reservation which is appropriate for each circumstance.

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END OF EXAMINATION
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## AUDITING 517 EXAMINATION Based on 1984/85 Lesson Notes December, 1984 EXAMINER'S COMMENTS

#### General

This examination included a range of questions, from very general (Q.2) to very specific (Q.5), thus testing a variety of skills. The results indicated that a satisfactory number of students were equal to the task.

#### Specific

- Q.1 The question was well understood and well answered. Answers were straightforward and to the point. The results were quite acceptable.
- Q.2 This question appeared to surprise many students. First, the high mark allocated to the question obliged students to write complete, detailed and meaningful answers. Second, as there were many items which could be relevant to the answer, students were probably afraid they might have left something out. The results were average.
- Q.3 Overall, very few students knew all five components. The results were rather unsatisfactory.
- Q.4 Questions (a)(i) and (a)(ii) were well answered. Questions (a)(iii), however, was not. Answers generally lacked depth. Part (b) presented no particular problem and tended to bring student marks for the question up to an acceptable level.
- Q.5 (a) This part was very well answered.
  - (b) Students generally mentioned the need to refer to various documents, but rarely mentioned the information which has to be obtained from staff members.
  - (c) Mainly, the answers dealt with the usefulness of keeping a good file in order to answer management's questions and to provide evidence in the event of a law suit.
  - (d) Most students did very well.
  - (e) Many students merely listed questions about compliance procedures.
  - (f) This part was generally well answered.
  - (g) Many students referred to Section 5300 of the CICA Handbook.
  - (h) Practically all students based their answer on the inherent limitations of internal control.

Overall, students showed a good understanding of the concepts related to internal control in general.

- Q.6 There was commonly a lack of depth of answers to part (a). Parts (b) and (c), however, were very well answered. Although part (d) was straightforward, most students had problems answering it.
- Q.7 This question was short, easy and very well answered.

# AUDITING 517 EXAMINATION December, 1984 SUGGESTED SOLUTIONS Based on 1984/85 Lesson Notes

Marks Time: 3 Hours

11 Q.1 Sources: Lesson Notes 517-1
Anderson, Chapters 4 and 5
CICA Handbook, Section 5100

#### General standard

(3) The examination should be performed and the report prepared by a person or persons having adequate technical training and proficiency in auditing, with due care and with an objective state of mind.

#### (4) Examination standards

- i) The work should be adequately planned and properly executed. If assistants are employed they should be properly supervised.
- ii) There should be an appropriately organized study and evaluation of those internal controls on which the auditor subsequently relies in determining the nature, extent and timing of auditing procedures.
- iii) Sufficient appropriate audit evidence should be obtained by such means as inspection, observation, enquiry, confirmation, computation and analysis, to afford a reasonable basis to support the content of the report.

#### (4) Reporting standards

- i) The scope of the auditor's examination should be referred to in the report.
- ii) The report should contain either an expression of opinion on the financial statements or an assertion that an opinion cannot be expressed. In the latter case, the reasons therefor should be stated.

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- iii) Where an opinion is expressed, it should indicate whether the financial statements present fairly the financial position, results of operations and changes in financial position in accordance with an appropriate disclosed basis of accounting, which except in special circumstances should be generally accepted accounting principles. The report should provide adequate explanation with respect to any reservation contained in such opinion.
- iv) Where an opinion is expressed, the report should also indicate whether the application of the disclosed basis of accounting is consistent with that of the preceding period. Where the basis or its application is not consistent, the report should provide adequate explanation of the nature and effect of the inconsistency.

#### 24 Q.2 Sources: Lesson Notes 517-6 Anderson, Chapter 14

#### (a) Integrated test facility

As computer systems become more complex and integrated, the integrated test facility (ITF) approach is gaining in popularity. Also referred to as the mini-company or model office approach, it enables the auditor to duplicate, on a small scale, the system of processing which takes place for the company as a whole.

An ITF is merely a sophisticated extension of the test deck approach. Selected transactions are mixed with live data and processed through the various phases of the system. The output is then compared with the previously calculated manual results. This approach allows the auditor to monitor continuously the performance of the system.

The ITF is a sophisticated audit approach which requires time and skill to develop. Once developed, however, test transactions can be processed using the normal company procedures which apply to all regular transactions entering the system.

- (6) The major advantages of an ITF are (only required):
  - The technique provides continuous monitoring of the system under review. When the program changes, even minor ones, are made, the test data can be rerun to determine the impact of the changes on the system.
  - 2) Because the ITF is run as a regular part of the processing operations, it overcomes much of the artificiality (abnormal conditions, point-in-time limitation) of the normal test deck approach.

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The technique is useful for highly integrated and online systems. Such systems are the very ones which are most difficult to audit by conventional means.

The major disadvantages of an ITF are (only me required):

- Special procedures must be developed to ensure that the test transactions do not affect the company's financial reporting or operations. For example, precautions are needed to ensure that the live master files are not permanently changed or that goods are not shipped as a result of the ITF use.
- As with any test deck approach, the ITF is not a conclusive test for fraudulent manipulation of programs and data.

#### Continuous process auditing

Continuous process, or concurrent, auditing is the automatic selection of transactions for review during live processing. Audit software modules are embedded into the accounting programs. Where selections are required on an ongoing basis, this approach offers several distinct advantages over generalized retrieval software (only two required):

- Regular processing operations are not interrupted as audit selections are an automatic by-product of the production output.
- After the initial set-up, there is no additional time or cost for determining selections for audit review.
- 3) The timeliness of the audit output ensures that the auditor becomes aware of potential problems as they occur rather than after the fact.

The great strength of continuous process auditing lies in its flexibility. It can be used by both large integrated systems and by small mini-computer applications. The embedded audit logic can be as simple or as complex as circumstances require.

(5) A typical module would select transactions meeting certain predefined criteria such as high-value items or transactions that fall within specific categories judged to be particularly risk-prone. An embedded statistical sampling module would typically read all transactions not meeting the high-value or key item criteria.

#### Program simulation

The accuracy of program logic in a simple program can be checked manually by tracing input to output and recalculating any extensions, additions or other calculations involved. In a complex program manual retracing and recalculation may no longer be possible. In such circumstances, it may be necessary to prepare a special program to duplicate the alleged processes of the regular production program in order to prove their validity.

(4) Program simulation (sometimes referred to as parallel simulation) is the technique of replicating the basic program logic of a given program through the use of a special program or generalized software. The auditor must first define the program functions to be verified, obtain a thorough understanding of them, and then obtain a representative set of input and output from past processing of the production program. The input is then processed by the simulated program and the results are compared to the earlier production program output. Any discrepancies would then be analysed.

The success of this technique will be influenced by the complexity of the program being simulated and by the ability of the audit software to duplicate the functions being reviewed.

#### (4) Tagging

A large system could well have thousands of different logic paths available to it. As a result, it may be very difficult to predict exactly what will happen when a certain transaction is entered into the system. Tagging (also called Snapshot) provides an audit trail for a transaction as it flows through a computer system. A transaction is identified or "tagged" using a special code and the transaction is traced as it flows through the system. The end result is a printed audit trail.

In order to use this technique, programmed logic must be entered into the computer system to detect the tagged transactions and to print out the audit trail.

The technique can be used to:

- predict the particular processing path which a transaction, as yet unprocessed, will take;
- test a new program or system;
- determine why a particular transaction was processed in a specific manner;
- tag transactions randomly in order to check the quality of output.

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Tagging can also complement the ITF approach. For example, if a transaction was not processed as expected through the ITF, a similar transaction can be tagged and tracked through the system to determine how the transaction was processed.

(5) (b) Even though these techniques may be rarely used by the external auditor directly, they can affect his or her work for two reasons. First, the internal audit function is itself an important element of internal control within the organization. To the extent that the internal audit department is using computer-assisted techniques to monitor or audit computerized systems on a continuous basis, the external auditor can put greater reliance on the accounting results produced by those systems than would otherwise be the case. At the same time, to justify such additional reliance, the external auditor must be able to review and evaluate the internal audit use of these techniques.

Second, the external auditor, in the role of adviser to the client, may be expected to consult with and assist the internal auditor in implementing these techniques. The external auditor should, therefore, have an awareness of their capabilities, advantages and limitations.

- 10 Q.3 Sources: Lesson Notes 517-4
  Auditing: An Integrated Approach,
  Chapter 7, pp. 225-232
  - The identification and selection of a unit of information which will be used as part of the audit objective, e.g., gross margin on sales % (GM%).
  - A clear understanding and knowledge of all the factors involved to create the unit of information and how the interaction between the factors affects and achieves the result, e.g.,
    - opening inventory plus purchases less closing inventory creates cost of goods sold
    - sales minus cost of goods sold equals GM
    - GM divided by sales equals GM%
    - the lower the purchase, the higher the GM%; and vice versa
    - the lower the closing inventory, the lower the GM%.
  - 3) a predetermined result which may be based on
    - historical patterns, e.g., GM = 30%
    - budgeted expectations, e.g., GM = 33%
    - industry statistics, e.g., GM = 28%.

4) Comparing the actual result to the predetermined result; determining whether the unit of information is reliable and sufficient for the purposes intended; and obtaining adequate explanations for material variances: e.g., Budgeted expectations, GM = 33%

Actual result, GM

Explanation (supported by subsequent investigation): budgeted selling price had to be lowered to meet the competition.

- Arriving at a conclusion e.g., GM = 28% is acceptable and the audit objective has been met.
- Q.4 Sources: Lesson Notes 517-2 15 CICA Handbook, Section 6030
  - With the increasing recognition of the auditor's (2) i) (a) responsibility for the validity of the inventory figure, advances have been made in procedures to substantiate the physical existence and condition of Inspection of stock-in-trade has the inventory. become generally recognized as the most useful and conclusive procedure by which auditors can satisfy themselves in this respect.
  - ii) It is recognized that the auditors could not be (2) expected to possess the specialized technical knowledge required, in many cases, to establish absolute assurance of the existence of goods of specified quality, grade and condition. Therefore, useful inspection of the goods by the auditors will require the exercise of reasonable care and skill and good judgment rather than the expert technical knowledge of the goods which would be expected of an appraiser or valuer.
  - iii) In practice, inspection of stock-in-trade by auditors (2)varies in extent and in procedure. Normally, the inspection applies only to the more significant items in the inventory but, occasionally, it is extended to cover all of the goods. Generally, it is carried out at the time of the client's physical stocktaking but, in some instances, it is done at another time. Usually, the checking of quantities is accomplished most conveniently by observing and noting the counts made by the client's staff, but actual test counts are often undertaken by the auditors, before, during and after the client's physical stocktaking.

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- (2) iv) Observation of the client's physical stocktaking, whether this is at the end of the financial period or some other date, is considered a most useful auditing procedure in assessing the degree of care which management exercises in establishing the existence and condition of inventories.
- (2) v) Attendance at stocktaking should consist of such observation of procedures and of counts, and inspection of general condition of the goods as will enable the auditors to form an opinion on the representations of management as to quantity and condition. It is desirable that a review of the methods to be used by the client in the stocktaking be made in advance. Such review and observation permit an evaluation of the effectiveness of internal control as applied, not only to the book records, but also to the procedures of taking physical inventories.
- (2) vi) The judgment of the auditors, in the light of the circumstances, will determine the audit procedures to be applied in each case. For example, if goods of significant value are stored at locations which it is not convenient for the auditors to visit, they may appoint representatives to attend the client's physical stocktaking on their behalf. In some cases, if the accounting system provides a good internal control over the inventories, test counts of goods at some time other than at the time of stocktaking, combined with other procedures to confirm the existence of the goods, may provide satisfactory alternatives. In other cases, such as those of goods in transit or goods in independent warehouses, the auditors may satisfy themselves as to the existence of the stockin-trade by means of independent documentary evidence.
- (3) (b) If the auditors, after discussion with management, have not satisfied themselves as to the physical existence, ownership or the basis of valuation of the inventory, the Recommendations set out in CICA Handbook, Section 5510 should be followed.
- 20 Q.5 Sources: Lesson Notes 517-2 Anderson, Chapter 10
  - (1) (a) Identifying the internal controls within an internal control system.
  - (3) (b) Consists mainly of a detailed enquiry of personnel at various organizational levels within the enterprise, together with reference to documentation such as procedures manuals, job descriptions and flowcharts.

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- (2) (c) i) There may be frequent changes in audit personnel.
  - ii) Provides a basis for reviewing the system in future years.
- (2) (d) i) narrative descriptions
  - ii) questionnaires
  - iii) flowcharts
  - iv) combination of the above
- (3) (e) i) whether the auditor still intends to rely on each system of internal control he has reviewed;
  - ii) with respect to each of the above-mentioned systems, which particular controls within that system he intends to rely on;
  - iii) substantive auditing procedures necessitated by an identified weakness or absence of internal controls within each system.
- (1) (f) To determine the nature, extent and timing of substantive auditing procedures.
- (5) (g) i) The results of the procedures conducted at the interim audit visit.
  - ii) Responses to enquiries as to whether the internal control systems are still operating in the same manner as when studied and evaluated at the interim audit visit.
  - iii) The length of the remaining period.
  - iv) The nature and amount of the transactions or balances involved.
  - v) The possibility of conducting compliance procedures covering this period for certain internal controls of a supervisory nature and their relationship with other internal controls not so tested.
- (3) (h) i) Changes in key personnel, especially those exercising supervisory control, including changes arising from vacation arrangements, which may cause initial unfamiliarity with internal control procedures;
  - ii) Significant seasonal fluctuations in volume of transactions;
  - iii) Human error.

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- 15 Q.6 Sources: Lesson Notes 517-7
  Anderson, Chapters 9 and 13
  - (a) Statistical sampling techniques do not preclude the responsibility for the auditor to exercise his professional judgment, but they are useful in the performance of his audit responsi-
  - (1) bilities. Statistical sampling techniques provide greater
    (2) reliance on the test results since they allow the auditor to quantify to what extent his test results are representative of the characteristics of the population.
  - (1) Once the auditor has established the confidence level and the degree of precision, statistical sampling techniques allow him to determine the sample size mathematically. The sample size thus determined may be smaller than the size (1) which would have been established based on the auditor's
  - judgment.
  - (b) Since each route is the responsibility of a different (1) employee, it may be inadequate to consider the routes as a single population for statistical purposes. However, assuming that the routes can be considered as a single population, each item in the population must stand an equal
  - (1) chance of being selected. The technique used by the company is not statistically valid because an account included in a route with many customers has a lesser
  - (1) probability of being selected than an account included in a route with less customers.
  - (1) Also, the company should use a random sampling technique (which it does not).
  - (c) The objectives are to establish the existence and validity
    (2) of those accounts and to evaluate the adequacy of the allowance for doubtful accounts.
  - (1) Here, statistical sampling techniques are one of several methods which can be of help to the auditor.
  - (d) There is no guarantee that the proportion of errors in the (1) sample is the same as the proportion in the population.
  - (1) The test results make it possible to state the probability that the rate of errors in the population is, for example, between 2% and 6%. Only an examination of all the accounts
  - (1) in the population can give the exact proportion of erroneous accounts.

Q.7 Sources: Lesson Notes 517-10
Anderson, Chapter 15
CICA Handbook, Section 5510

The term "reservation" is used when the auditor:

- (2) (a) forms a positive opinion on the financial statements as a whole, but qualifies that opinion with respect to a departure from generally accepted accounting principles or a limitation in the scope of his examination. In such circumstances, the auditor expresses a qualified opinion.
- (2) (b) forms an opinion that the financial statements are not presented fairly in accordance with generally accepted accounting principles. In such circumstances, the auditor expresses an adverse opinion.
- (1) (c) is unable to form an opinion on the financial statements because of a limitation in the scope of his examination. In such circumstances, the auditor expresses a denial of opinion.

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END OF SOLUTIONS

#### AUDITING 517 EXAMINATON March, 1985

Marks Time: 3 Hours

12 Q.1 In obtaining sufficient appropriate audit evidence to afford a reasonable basis to support the content of his report, the auditor seeks reasonable assurance, through the application of procedures that comply with generally accepted auditing standards, that fraud and error which may be material to the financial statements have not occurred or that, if they have occurred, they are either corrected or properly accounted for in the financial statements.

#### REQUIRED:

- (5) (a) Identify and explain four factors which may affect the risk of mis-statement through fraud or error.
- (7) (b) During his examination, the auditor may encounter specific circumstances that make him suspect that the financial statements may be materially mis-stated. Give five examples of circumstances which, while not necessarily indicating that fraud or error exists, may alert the auditor to such a possibility.
- Q.2 You are auditing the accounts payable system of the company named "Idea Ltd.", your client. You are testing the internal control procedure of requiring approval before vouchers are paid. You believe that in order to place reliance on this procedure you must be 95% confident that the number of vouchers that are paid without being approved is not greater than 8%. You take a pilot sample and conclude that the expected error rate is 6%.

#### REQUIRED:

- (6) (a) Based on a sample of 380 vouchers, you find that 19 of the vouchers lack the proper approval. What conclusions can you make?
- (8) (b) If the upper precision limit achieved is greater than the maximum allowable error rate of 8%, list the possible courses of action open to you.

12 Q.3 Certain characteristics of electronic data processing (EDP) can be identified which have a particular bearing on internal control. The effects of computerization extend beyond the physical operation of the computer hardware itself to include many interacting manual procedures - the preparation of input, the writing of computer programs, the distribution of output, etc. The term "computer-based system" is often used to convey the sense of this interaction.

#### REQUIRED:

Outline the characteristics of computer-based systems which most directly influence internal control.

15 Q.4 Each system of internal control is designed to ensure, as far as practical, that particular objectives of management are achieved. Internal control can provide reasonable assurance to management that such objectives are reached but, because of inherent limitations, it can never provide absolute assurance.

#### REQUIRED:

- (6) (a) List the inherent limitations of internal control.
- (6) (b) Management's objective for internal control is to ensure, as far as practical, the orderly and efficient conduct of the enterprise's business. What does this orderly and efficient conduct consist of?
- (3) (c) How does internal control assist management in achieving the objective of profitability?
- 10 Q.5 The term "limited assurance engagement" is used to describe services provided by a public accountant which are "less than an audit". A limited assurance engagement includes any engagement where a public accountant performs services which enhance the reliability or credibility of financial information but which are not sufficient to support the expression of an opinion.

In his book <u>The External Audit</u>, R.J. Anderson refers to a research study ("Limited Audit Engagements and the Expression of Negative Assurance") which suggests criteria for accepting, performing and reporting on limited assurance engagements.

#### REQUIRED:

Identify and comment on these criteria.

10 Q.6 Notes to financial statements and qualifications of opinion expressed in the auditor's report seem to serve the same purpose: they provide a means for the auditor to ensure that all the necessary financial information which is not reflected in the financial statements is still disclosed satisfactorily.

REQUIRED:

Comment on the above statement.

- 21 Q.7 In connection with your examination of the financial statements of Canadian Co. Ltd., for the year ended December 31, 1984 you performed a confirmation of accounts receivable at year-end. At that date, receivables consisted of approximately 200 accounts totaling \$956,000. Seventy-five of these accounts with balances totaling \$650,000 were selected for positive confirmation. All but 20 of the confirmation requests have been returned; 30 were signed without comments, 15 had minor differences which have been cleared satisfactorily, while 10 confirmations had the following comments:
  - We are sorry but we cannot answer your request for confirmation of our account as our company uses an accounts payable voucher system.
  - 2) The balance of \$1,050 mentioned in your letter was paid on December 23, 1984.
  - 3) The above balance of \$7,750 was paid on January 5, 1985.
  - 4) This account has been paid in full.
  - 5) We do not owe you anything at December 31, 1984 as the goods represented by your invoice dated December 30, 1984 in the amount of \$11,500, were received on January 5, 1985 on f.o.b. destination terms.
  - 6) An advance payment of \$2,500 made by us in November 1984 should cover the two invoices totaling \$1,350 shown on the statement attached.
  - 7) We never received these goods.
  - 8) We are contesting the amount of \$12,525 which we feel is excessive.
  - 9) The amount is correct. As the goods have been shipped to us on consignment, we will remit payment upon selling the goods.
  - 10) Your credit dated December 5, 1984 in the amount of \$440 cancels the above balance.

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#### REQUIRED:

- (16) (a) What specific audit procedures should you use to dispose of each of the items on the previous page?
- (5) (b) What specific steps should you take in connection with the 20 requests which remained unanswered, even after your second request?
- 6 Q.8 An auditor could use analytical review procedures in several segments of the audit. The auditor's decision to use analytical review as a major component of the overall audit strategy is a professional judgment that can only be made once the auditor is familiar with the client's enterprise and the complexities of the current audit.

#### REQUIRED:

List five basic data sources which provide variables for analytical review.

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END OF EXAMINATION

## AUDITING 517 EXAMINATION March, 1984 EXAMINER'S COMMENTS

#### General

The results for this examination were very satisfactory overall, and in particular for questions 7 and 8. The examination covered several different topics, with the consequence that even if one particular question was unfamiliar to a student, there was less chance of total failure.

#### Specific

- Q.1 A number of students were not able to differentiate between part (a) and part (b). Thus, although the question was easy in itself, the results were mediocre.
- Q.2 This question appeared to take many by surprise. Answers to part (a) were evasive, as is generally the case when one is at a loss for what to say. On the other hand, part (b) was dealt with very well.
- Q.3 This question was direct and unambiguous, as were the answers. Several students obtained the maximum mark.
- $\mathbb{Q}.4$  This question tested basic knowledge. It was surprising that many students were not able to answer such a question satisfactorily.
- Q.5 This type of question involves a certain risk. It is very specific and leaves little room for interpretation and personal judgement. In general however, results were good.
- Q.6 A number of students had very great difficulty with this question. Answers were limited to generalities: e.g., "Notes are management's responsibility whereas responsibility for the report belongs to the auditor." On the whole, the answers were unsatisfactory.
- Q.7 This was a relatively easy question. Many students earned more than 15 out of a possible 21 marks.
- Q.8 More than 80% of the students received the maximum mark.

## AUDITING 517 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 12 Q.1 Sources: Lesson Notes 517-1 C1CA Handbook, Sections 5300.41 to 5300.56
  - (5) (a) Within the limitations of the auditing process, the auditor approaches the examination taking into consideration the degree of risk of mis-statement through fraud or error. This risk may be affected by such factors as:
    - the nature of the item for example, inventory is usually more susceptible to mis-statement than is long-term debt;
    - ii) the nature of the business carried on by the enterprise - for example, the financial statements of an enterprise subject to erratic performance may be more susceptible to mis-statement;
    - iii) the types of fraud or error that could occur and the possibility of their occurrence taking into consideration the adequacy of internal controls; and
    - iv) situations which may alert an unusual influence on management - for example, a contemplated public offering, a management profit sharing arrangement or a financially weak enterprise.
  - (7) (b) During the examination, the auditor may encounter specific circumstances that raise the suspicion that the financial statements may be materially mis-stated. Examples of circumstances which, while not necessarily indicating that fraud or error exists, may alert the auditor to such a possibility, are:
    - the accounting records being seriously incomplete or inadequate;
    - ii) conflicting evidence on important matters;
    - iii) unusual documentary evidence such as handwritten alterations to documents or handwritten documents where they would usually be typed;
    - iv) unusual transactions by virtue of their nature or complexity, particularly close to the year-end; and
    - v) situations described in paragraph 5300.53.

14 Q.2 Sources: Lesson Notes 517-7

R.J. Anderson, The External Audit, Chapter 13

Subject: Statistical sampling

- (6) (a) Expected occurrence rate = 19/380 = .05 Therefore: 1-.05 = .95
  - The achieved precision is  $1.64\sqrt{\frac{(.05)(.95)}{380}} = .018 \approx 2\%$
  - The auditor may conclude:
    - i) there is a 5% chance the actual error rate is below 3% and a 5% chance it is above 7%;
    - ii) there is 95% confidence that the actual error rate does not exceed 7%.
- (3) (b) i) Increase the sample size (if there is reason to believe an unrepresentative sample may have been obtained).
- (3)

  ii) Change the requirements. You may decide to increase the maximum allowable error rate. This is not recommended, since the rate should have been objectively determined before the sample was selected.
- (2) iii) Decrease reliance.
- 12 Q.3 Sources: Lesson Notes 517-5
  R.J. Anderson, The External Audit, Chapter 8

Subject: Internal control in an EDP environment

The characteristics of computer-based systems which most directly influence internal control are:

- 1) internally stored programs
- 2) machine operation
- 3) high speed
- 4) rigidity
- 5) reliability
- 6) invisible recording

#### 1) Internally stored programs

Computerized processing is guided by internally stored programs which of necessity are highly detailed, and this in itself creates a risk of error. Controls over the development and implementation of programs are required to ensure that all reasonable situations have been anticipated. Errors occurring as a result of incorrect programming will tend to be patterned or systematic, rather than random as in manual operations.

#### 2) Machine operation

Although the computer is largely run by internally stored programs, certain manual operations are required to start the machine, load the program, mount tape files, etc. There is always the danger of inadvertent operator error or improper operator intervention.

#### 3) High speed

Electronic speed permits computer systems to process massive volumes of data rapidly. On the other hand, if controls are inadequate, the potential for rapid proliferation of errors is aggravated by the presence of a computer.

#### 4) Rigidity

The computer cannot handle situations which have not previously been anticipated (i.e., for which it has no programmed instructions). This rigidity requires more formalized, defined procedures for users to follow. For example, detailed instructions are required as to exactly how input forms are to be prepared, how errors are to be corrected, etc.

#### 5) Reliability

A properly controlled computer system offers a higher level of system reliability than a well controlled manual system. Electronic hardware is not prone to fatigue, carelessness, boredom or dishonesty, although human error can creep in during input preparation, output interpretation, programming and operating.

#### 6) Invisible recording

The information recorded in magnetic data files (tape or disk) is invisible to the human eye. This factor reduces the opportunity for visual editing and, in some cases, increases the opportunity for undetected defalcation.

- 15 Q.4 Sources: Lesson Notes 517-2 CICA Handbook, Section 5205
  - (6) (a) The inherent limitations of internal control include:
    - i) management's usual requirement that a control be cost-effective;
    - ii) the fact that most controls tend to be directed at regularly recurring types of transactions and not at unusual transactions;
    - iii) human error;
    - iv) varying efficiency with volume of transactions or changes of staff;
    - collusion to circumvent a control which is dependent on segregation of duties;
    - vi) a person responsible for exercising control abusing that responsibility (perhaps a member of management overriding a control).
  - (6) (b) Management's objective for internal control is to ensure, as far as practical, the orderly and efficient conduct of the enterprise's business, including:
    - discharge of statutory responsibilities, for example, maintaining accountability to owners;
    - ii) profitability and minimization of costs;
    - iii) prevention and detection of fraud and error;
    - iv) safeguarding of assets;
    - v) reliability of accounting records;
    - vi) timely preparation of reliable financial information.
  - (3) (c) Internal control assists management in achieving the objective of profitability by:
    - ensuring as far as practical that reliable information is provided to management for the determination of business policies; and
    - ii) monitoring the efficient implementation of those policies.
- 10 Q.5 Sources: Lesson Notes 517-9
  R.J. Anderson, The External Audit, Chapter 17 section on limited audit assurance engagements and
  negative assurance

Subject: Limited assurance engagement

The work should be performed with due care and objectivity by personnel having adequate technical training and proficiency in auditing. The work should be adequately planned and assistants properly supervised.

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- 2) The financial information should be auditable (verifiable) and within the public accountant's competence to evaluate (e.g., derived in significant part from the accounting system and subject to internal control).
- 3) The work performed should be sufficient to add a significant degree of credibility to the financial information. If the degree of credibility is not sufficient, the users should have access to further information about the entity which, when combined with the public accountant's report, is adequate for their purposes.
- 4) The client and known users should clearly understand the terms of the engagement and the risks inherent in basing decisions on less than full audit procedures.
- 5) Unless there are generally recognized and accepted standards for performing the work and reporting on it, the distribution of the report should be restricted to persons or organizations who have accepted the engagement terms.
- 6) The communication, which may or may not be called a report, should clearly describe the nature and scope of the engagement and the basis upon which the financial information is prepared. It should also report the results of the work performed.
- 7) It should express whatever form of limited assurance is appropriate but clearly differentiate this expression of assurance from an audit opinion.

NOTE: 2 marks per item to a maximum of 10 marks.

10 Q.6 Sources: Lesson Notes 517-10 R.J. Anderson, Chapter 15

There is only an apparent similarity between notes to financial statements and qualifications of opinion because:

- (a) Being part of the financial statements, notes are management's responsibility whereas qualifications expressed by the auditor are part of the audit report accompanying the financial statements and therefore the auditor's responsibility.
- (b) Qualifications expressed in the auditor's report may indicate a difference of opinion between management and the auditor as to the interpretation or disclosure of the company's financial statements.
- (c) Notes disclose necessary information which could not easily be included in the actual financial statements.

Continued...

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- (d) Notes cannot replace qualifications expressed by the auditor.
- (e) Notes can be useful to provide explanations and additional information which the auditor would otherwise have to include in the report.

NOTE: 2 marks per item to a maximum of 10 marks.

#### 21 Q.7 Source: Lesson Notes 517, Lessons 4 and 8

#### (a) Overall Objectives:

- determine that the account is a valid receivable;
- determine that the account is a receivable arising before the date of the balance sheet and has not been settled at that date.
- (2)

  1) i) Examine the accounts receivable ledger for data on transactions supporting the account balance (number, date and amount of unpaid invoices, date and amount of last payments).
  - ii) Send the customer a partial positive confirmation request for all payments or for payments made during a specific period.
  - iii) If (ii) is impracticable, verify all collections from the debtor after the balance sheet date, keeping in mind the overall objectives stated above. (Ensure that each payment received matches a specific sale.)
  - iv) If (iii) is impracticable, examine internal evidence such as customer's orders, correspondence files, shipping documents, billing records, etc.
- (2) 2) i) Trace the amount to the customer's individual card in the accounts receivable ledger and verify if the payment was recorded before December 31, 1984.
  - ii) Check the amount of \$1,150 in the cash receipts journal and note the date it was recorded.
  - iii) If the customer's cheque was indeed received before December 31, but was not recorded at that date, the auditor should discuss the matter with the person in charge, to identify the internal control deficiency.
- (2) 3) i) Verify the debit entry in the accounts receivable ledger and the date the corresponding credit entry was recorded.
  - ii) Check the amount in the cash receipts journal.

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- iii) A cut-off problem could exist: the cut-off date
   should be verified (using packing slips, for
   instance) to ascertain that the sale does relate
   to the fiscal year being audited.
- (2) 4) i) Verify the debit entry in the accounts receivable ledger and ascertain that a corresponding amount was credited. Verify the date the credit was recorded.
  - ii) Check the amount in the cash receipts journal.
  - iii) If the cheque has not been cashed, examine the list of NSF cheques and/or outstanding deposits.
  - iv) Verify the cut-off date and investigate the possibility of lapping.
  - v) Discuss the matter with company officials and, if necessary, ask the customer to send a copy of the cheque that was issued.
- (2) 5) i) Match the shipping order with the invoice to ascertain that the goods were shipped only on December 30.
  - ii) Review the contract for the clause which establishes that the shipper is responsible for the goods until they are received (f.o.b.).
  - iii) If there is an f.o.b. clause:
    - cancel the sale
    - adjust the accounts receivable
    - adjust year-end inventory to include the goods connected with this sale.
- (2) 6) i) Trace the \$2,500 credit (advance) and the date it was recorded to the accounts receivable ledger.
  - ii) Verify the entry in the cash receipts journal and the date it was recorded (summary of the miscellaneous column).
  - iii) Ascertain that the transaction was recorded properly to avoid a simple presentation mistake.
  - iv) Adjust the receivable balance after verifying the two invoices subsequently issued.
  - v) Discuss the matter with the person responsible for this policy (advance payments from customers).
- (2) 7) i) Verify the debit balance in the accounts receivable ledger.
  - ii) Verify the entry of the invoice in the sales journal:
    - customer's name
    - date of entry.
  - iii) Match the purchase order with the packing slip
     and the inventory card data. (Check signatures
     on these documents.)

Continued...
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- iv) If the delivery is performed by an independent company, verify the statement of account, the invoice and the packing slip.
- v) If everything seems in order, ask company officials to contact the customer.
- (2) 8) i) Verify the invoice:
  - customer's name
  - date
  - calculation of balance (extensions and footings)
  - price list
  - sales journal entry
  - ii) Match the purchase order with the packing slip:
    - name and address
      - date
      - amount
  - iii) Ascertain that the goods were not returned.
  - iv) If everything seems to be in order, notify company officials of the internal problem concerning this customer.
- (2) 9) i) Review the contract between the consignee and the consignor.
  - ii) Cancel the accounts receivable on the individual card of the accounts receivable ledger. A memo is sufficient.
  - iii) Cancel sales recorded (according to data on the customer's account) for any consigned goods.
  - iv) Adjust the inventory account to show consigned goods at the end of the year.
  - v) Request a confirmation from the consignee.
  - vi) If consigned goods are significant, perform a physical count.
  - vii) Ascertain that no other consigned inventories were recorded as sales.
- (2) 10) i) Check the customer's card in the accounts receivable ledger to ascertain that the credit was actually granted and recalculate the account balance.
  - ii) Trade the credit note to determine which item it was issued for, and ascertain that it was authorized.
  - iii) Verify the entry for this transaction (customer's name, amount of credit and posting to the accounts receivable ledger).
  - iv) Ascertain that goods returned were recorded in the inventory cards.

NOTE: Maximum 16 marks.

Continued...
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- (5) (b) i) Send third confirmation request.
  - ii) Verify the existence of customers by enquiring from authorized personnel or referring to trade directories.
  - iii) Phone those customers.
  - iv) Review various vouchers for frequency of transactions with those customers and various book entries.
  - v) Use alternative procedures (subsequent collections, examination of internal evidence, etc.)
- 6 Q.8 Source: Lesson Notes 4:3
  - 1) Elements of current financial statements.
  - 2) Information from prior periods.
  - 3) Budgets and forecasts (prepared at the beginning of the period).
  - 4) Related industry statistics.
  - 5) Non-financial information, e.g., economic factors, consumer related factors, competition related factors.

100

END OF SOLUTIONS

### AUDITING 517 EXAMINATION June, 1985

Marks Time: 3 Hours

10 Q.1 Legal standards of due care are discussed by Anderson in The
External Audit. As he points out, no suggested auditing
procedure in any textbook can be held out to be invariably
necessary on all audits, nor necessarily sufficient on any given
audit.

#### REQUIRED:

List five factors that should be considered in judging due care.

11 Q.2 The auditor's level of knowledge appropriate for a particular engagement is less than that customarily possessed by management. However, it is sufficient to enable the auditor to obtain an understanding of the events, transactions and practices that, in his/her judgment, may have a significant effect on the examination or on the financial statements.

#### REQUIRED:

- (4) (a) What would the auditor consider in obtaining knowledge of the economy and the industry within which the enterprise operates?
- (7) (b) What would the auditor consider in obtaining knowledge of the enterprise itself and its accounting systems?
- Q.3 In an electronic data processing system, master files contain permanent or semi-permanent information, as opposed to transaction files, which contain only current and temporary data. Master files are of two types: those which contain relatively constant information (such as price lists) and those which contain accumulating balances (such as accounts receivable or general ledger files). The first type is updated infrequently but used extensively in processing transactions. The second type is updated frequently but may or may not be used as input in processing transactions.

For either type of master file, the completeness, accuracy, and authorization of its data are of critical importance, since such data will either be used repeatedly during processing or will represent important accounting balances.

Continued...
Page 1 of 4

Controls are needed with respect to master files, to ensure that the most current version of the master file is used during processing and to ensure that critical master file information is complete, accurate and authorized.

#### REQUIRED:

- (4 1/2) (a) What are the control techniques to ensure that the most current version of the master file is used?
- (7 1/2) (b) What are the control techniques to ensure that critical master file information is complete, accurate and authorized?
- 15 Q.4 Working papers constitute the record kept by the auditor of procedures applied and the results thereof, information obtained and conclusions reached in performing the examination and preparing the report.

#### REQUIRED:

- (2) (a) What do working papers mainly serve to do?
- (4) (b) What matters affect the form and content of individual working papers?
- (5) (c) What do working papers normally include?
- (4) (d) Who owns the working papers? Give a specific AND complete answer.
- Q.5 The profession is apprehensive about the appropriate use, if any, of expressions of negative assurance in connection with limited assurance engagements, because negative assurance can be literally true at any point on the scale of assurance possibilities. It could be literally true if one knew absolutely nothing about the subject and had performed no tests whatsoever. The advantages and disadvantages of expressing negative assurance vary depending on the circumstances.

#### REQUIRED:

Which factors might affect both the desirability of accepting a limited assurance engagement and of expressing negative assurance in connection with it? Explain.

7 Q.6 In statistical sampling, the desired precision is usually specified before the information is obtained. Precision is stated in terms of dollars or a percentage.

#### REQUIRED:

- (1 1/2) (a) Given an estimated amount of \$100,000 and a precision rate of  $\pm$  3%, between what two amounts is the actual value of the population expected to fall?
- (1 1/2) (b) Given an estimated amount of \$500,000 and precision limits of \$475,000 and \$525,000, what is the precision in dollars or in percent?
- (1 1/2) (c) Given an estimated amount of \$800,000 and a  $\pm$  3% precision, what are the precision limits?
- (1 1/2) (d) Given an estimated amount of \$1,000,000 and precision limits of \$960,000 and \$1,040,000, what is the precision in dollars or in percent?
- (1) (e) Given an estimated amount of \$440,000 and precision of  $\pm$  \$20,000, what are the precision limits?
- 10 Q.7 As auditor of Parent Limited and its wholly-owned subsidiaries, you are confronted with the following unrelated situations:

#### Situation 1

The consolidated profit of Parent Limited and its subsidiaries for the year ended December 31, 1984, is \$950,000. During your audit of one of the subsidiaries, you notice that, at December 31, 1984, the subsidiary had inventories purchased from Parent Limited in stock (in its warehouse). Parent sold those goods to the subsidiary at cost plus \$5,000. The net profit of the subsidiary for the year ended December 31, 1984, is \$20,000. There was no adjustment on any of the organization's financial statements, and management refuses to allow any change in the statements.

#### REQUIRED:

(6) What disclosure should you give in your report on (i) the financial statements of the subsidiary and (ii) the consolidated financial statements of Parent Limited and its subsidiaries?

#### Situation 2

In your review of the draft of the 1984 annual report, you notice that the president is reporting to the shareholders that the financial statements show an increase in operating profit of 130%. However, operating profit has increased by only 55% whereas net profit has increased by 130%.

## REQUIRED:

- (4) What action should you take?
- 12 Q.8 The auditor's use of the work of other parties, including specialists, as audit evidence, is an essential and integral part of the audit process. In most instances, the auditor will have sufficient knowledge to allow him/her to assess and use the work of others as it relates to the client's business, without resorting to the procedures to be applied when using the work of a specialist.

## REQUIRED:

- (5) (a) Give five examples of situations when an auditor may conclude it is necessary to rely on the expertise of a specialist in another field. Comment on each example.
- (3) (b) Give three factors that will influence the auditor's decision as to the extent of his procedures to enable him to use the work of a specialist.
- (4) (c) The auditor is responsible for the work of a specialist who is a member of the auditor's firm. However, the specialist may be a member of the <u>client's</u> staff. Explain how this latter situation may affect the auditor.
- 10 Q.9 Mountain Co. Ltd. operates a ski resort. The resort has eight ski lifts, each of which is served by a wicket where all the various types of passes are sold. There are four types of passes, and each pass is valid for any one of the lifts:
  - 1) season pass;
  - 2) one-week pass;
  - 3) one-day pass;
  - 4) one-lift pass.

## REQUIRED:

Describe a system which would provide good internal control over ski lift revenues.

END OF EXAMINATION

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# AUDITING 517 EXAMINATION June, 1985 EXAMINER'S

#### General.

The results on this examination were quite good. Some students found it a lot to digest and answer nine questions in three hours.

## Specific

- Q.1 This was the most poorly handled question, surprisingly because it refers directly to the textbook. Students explained at length what must be done to apply due care instead of indicating what criteria can be used to judge due care.
- Q.2 This question was very well answered. Students used their imaginations and this served them well.
- Q.3 This question was clear, direct and not ambiguous. Answers were found at both extremes; some obtained zero, others obtained the maximum mark.
- Q.4 This question seemed well liked by the students. It was very well answered. It deals with the very core of the required body of knowledge of the course.
- Q.5 This question refers directly to material in the Public Practice Manual. This type of question may present some memory difficulty for some students. Results were average.
- Q.6 This question was very easy and results were excellent. Over 80% of students obtained maximum marks.
- Q.7 A number of students were baffled by this "situation setting" type of question. Many failed to discuss the principle matter aspect of materiality which arose in Situation 1. Surprisingly, the results were mixed.
- Q.8 This question caused no particular problems and the results were good.
- Q.9 Students seem to dread this type of question. The answers were varied. The shortest answer was less than two lines; the longest used a whole booklet. Every possible type of answer was found, and results were generally poor.

# AUDITING 517 LAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks

10	Q. 1	Sourc	ces: Lesson Notes 517-1 Anderson, Chapter 5
	(2)	(a)	The distinction between auditor's and management's responsibilities.
	(2)	(b)	A limited responsibility for the detection of fraud.
	(2)	(c)	A duty of reasonable care, but not of guarantee.
	(2)	(d)	A duty of increased care in the presence of suspicious circumstances.
	(2)	(e)	The right to rely on other professionals, where special knowledge is required.
11	Q.2	Sour	ces: Lesson Notes 517-8 CICA Handbook, Section 5140
	(4)	(a)	<ul> <li>i) current business conditions and trends;</li> <li>ii) accounting policies and procedures common to the industry;</li> <li>iii) government regulations;</li> <li>iv) changes in product technology.</li> </ul>
	(7)	(b)	<ul> <li>organization of the enterprise including names of its related parties and the individual responsibilities of management;</li> <li>financial policies and capital structure;</li> <li>relevant contractual and statutory requirements;</li> <li>business risks;</li> <li>usual transactions and types of products and services;</li> <li>major suppliers and customers;</li> <li>relevant aspects of productions, distribution, personnel and administration.</li> </ul>

Time: 3 Hours

- 12 Q.3 Sources: Lesson Notes 517-5 Anderson, Chapter 8
  - (a) The control techniques to ensure that the most current version of the master file is used may include:
- (1<sup>1</sup><sub>2</sub>) 1) Maintaining and balancing master file control information. Control information is usually a total for the file, which is updated each time the file is updated. Its purpose is to ensure that all transactions are processed, that none are duplicated, and that the most current master file version is used. It may be a total which is part of the accounting records (the total of the accounts receivable trial balance) or a total which has no other accounting significance (the total number of master file records or a hash total. A hash total is an otherwise meaningless amount, e.g., the total of all pay rates on a payroll master file, which is accumulated solely for control purposes). A continuing record of control information is maintained by the user or the data control group from one processing cycle to the next such that previous total + changes - errors rejected = new total.
  - (112) 2) Using internal (machine readable) and external file labels. All computer files should be internally labelled by the operating system to show the version number, the date created, and the control information. Before processing, the label information should automatically be checked to ensure the proper file was used. This control is further strengthened by also using an external label which can be visually compared.
  - (1½) 3) Using the computer file librarian to ensure only the most recent version of the master file is released.
    - (b) The control techniques to ensure that critical master file information is complete, accurate, and authorized may include:
- (1½)

  1) Authorization of changes by appropriate officials.

  Sometimes certain critical master file information is closely controlled, while minor or non-financial changes are not. Care should be taken to ensure that all critical master file information is identified. It may not be immediately obvious that information has a potential financial impact.

For example, if the address of an insurance policy-holder could be changed without authorization, an

employee could arrange for a fraudulent policy loan cheque to be mailed to an address the employee controlled. The recorded age of a pension plan member can affect the amount and duration of benefits paid, and is therefore critical financial information.

- (1½) 2) Checking of authorization by the data control group before processing.
- (1½) 3) Balancing control information upon updating the master file.
- (1½) 4) Printing out and checking master file changes to source documents.
- (1½) 5) Printing out key information periodically for visual review.

In a data base system, specific users should be charged with a responsibility for the accuracy and completeness of the contents of specific data in the data base. Because the data base is shared among different users, this assignment must be made consciously; it is not obvious, as is the case where each user has a unique master file.

- 15 Q.4 Sources: Lesson Notes 517-2 CICA Handbook, Section 5145
  - (2) (a) Working papers serve mainly to:
    - provide support for the content of the auditor's report, including the representation as to compliance with generally accepted auditing standards; and
    - ii) aid the auditor in the conduct of the work.
  - (4) (b) The form and content of individual working papers are affected by matters such as:
    - the terms of the engagement including the nature of the report required;
    - ii) the nature and complexity of the client's business;
    - iii) the nature and condition of the client's records and system of internal control; and
    - iv) the needs in the particular circumstances for supervision and review of the work performed by any assistants.
  - (5) (c) Working papers provide evidence that an examination was performed in accordance with generally accepted auditing standards and would normally include:
    - i) notes pertaining to planning the examination such as:
       correspondence concerning the terms of the engagement; and

- a description of the auditing procedures to be carried out;
- ii) a description of the audit evidence obtained such as:

   a record that the internal controls on which the auditor subsequently relied in determining the nature, extent and timing of auditing procedures had been appropriately studied and evaluated; and
  - a record of the nature, extent and timing of auditing procedures performed and the results of such procedures, and significant decisions made. The record in these respects may take various forms, including memoranda, check lists, extracts from or copies of legal documents, audit programs, schedules and correspondence;
- iii) evidence that the work performed by assistants was supervised and reviewed;
- iv) evidence that the financial statements or other information on which the auditor is reporting agree with the accounting records underlying such statements or information; and
- v) copies of letters or notes concerning audit matters reported to the client.
- (4) (d) Audit working papers are the property of the auditor. However, during the course of an audit or where acting for a client in capacities in addition to auditing, the auditor may have acquired possession of records which are included within audit working papers, but which belong to the client, such as correspondence with taxation authorities. While audit working papers may, from time to time, serve as a useful reference source for the client, they are not a part of, nor a substitute for, the client's accounting records. When the auditor prepares working papers of an accounting nature, the client would be provided with a copy thereof if this is necessary to make the client's accounting records complete.
- 13 Q.5 Sources: Lesson Notes, 517-9 Anderson, Chapter 17
  - 1) To what extent are the intended uses and users of the data known?
  - Who is assuming primary responsibility for determining the scope of the audit or review effort, the auditor or the users?
  - To what extent do the users understand and accept the limitations of the work to be performed?

Continued...
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- 4) What assumptions can the auditor legitimately make as to the users' knowledge and understanding of the limitations of the engagement, especially if there is a diverse, rather than specific, user group (e.g., the shareholders of a public company who receive unaudited interim financial statements)?
- 5) Does it matter whether the auditor has an "audit base" knowledge of the client, i.e., the level obtained from having served as the client's auditor, including a knowledge of and a degree of satisfaction with relevant accounting systems and controls?
- 6) How extensive were the procedures performed?
- 7) Is the subject matter susceptible of substantiation by audit or review procedures and within the normal field of competence of the auditor?
- 8) Can the nature of the engagement and the scope and results of the audit effort be clearly described to distinguish it from an audit?
- 9) Is the distribution of the report to be restricted to specific users?
- 10) Does it matter whether negative assurance is explicitly stated in the report or merely implied by the absence of any indication of adverse findings?

NOTE: 2 1/2 marks for the first point; 1 1/2 marks for each additional point to a maximum of 13 marks.

- 7 Q.6 Sources: Lesson Notes 517-7 Anderson, Chapter 13
  - (1½) (a) \$ 97,000; \$103,000
  - $(1\frac{1}{2})$  (b) \$ 25,000; 5%
  - (1½) (c) \$776,000; \$824,000
  - (1½) (d) \$ 40,000; 4%
  - (1) (e) \$420,000; \$460,000
- 10 Q.7 Sources: Lesson Notes 517-10 Anderson, Chapter 15

## Situation 1

(3) i) Report on subsidiary's financial statements:

No disclosure is required. Inventories were properly valued, and the net profit figure is therefore correct.

(3) ii) Report on consolidated financial statements of Parent Limited and subsidiaries:

The net profit is affected but, since the amount is not material, the auditor does not have to disclose it in his report.

## Situation 2

- (4) The auditor should ask the president to make appropriate corrections since the information is known to be wrong. If the president refuses to do so, this should be disclosed in the auditor's report. Although the auditor is not required (professionally or legally) to read the annual report, the auditor cannot have his/her name associated with erroneous information.
- 12 Q.8 Sources: Lesson Notes 517-3 Anderson, Chapters 9 and 29 CICA Handbook, Section 5360
  - (5) (a) valuations of certain types of assets, for example, real estate, works of art, precious stones and drugs;
    - determination of quantities or physical condition of assets, for example, minerals stored in stockpiles, mineral and underground petroleum reserves, and the remaining useful life of plant and machinery;
    - determination of amounts using specialized techniques or methods, for example, an actuarially determined pension cost;
    - the measurement of work completed and to be completed on contracts in progress for the purpose of profit recognition; and
    - legal opinions and interpretations of agreements, statutes and regulations.
  - (3) (b) the materiality of, and the risk of significant error in, the item being examined in relation to the financial statements as a whole;
    - the complexity of the item; and
    - the absence or nature of other sources of audit evidence available with respect to the item.
  - (4) (c) When the auditor examines audit evidence, the nature and source of the evidence are considered. Accordingly, the work of a specialist who is on the client's staff is presumed to provide the auditor with less reliable evidence, owing to

the existence of a relationship which may appear to impair objectivity, than the work of a specialist of comparable skill and knowledge who is not on the client's staff. When the specialist is on the client's staff, the auditor may consider it necessary to perform more extensive procedures, or to engage an independent specialist to check some or all of the assumptions, methods or findings of the client's specialist.

10 Q.9 Sources: Lesson Notes 517-4 and 517-8
CICA Handbook, Sections 5215 and 5220

## Preliminary steps

- (a) All long-term and short-term passes should be pre-numbered by the printer.
- (b) Passes which are valid for more than one lift should have the following features:
  - weekly or monthly passes: prepare passes in various colors, so that a different color can be used for every monthly or weekly period;
  - provide a means (fastener or other) to ensure that passes cannot be transferred from one person to another.
  - season passes: provide for the insertion of the passholder's picture at the time of sale.

## Pre-sale control

- (a) Only one person should have control over unused passes. That person should keep a record of passes on hand.
- (b) Everyday, the person in charge should distribute the required number of passes to each sales outlet and have the sales clerk sign a document indicating the number of passes received.

## Sales control

- (a) Reduce the number of sales outlets to avoid errors, thefts and frauds (centralization of receipts: better control).
- (b) Passes should be purchased by cash.
- (c) The person selling the pass should fasten it to the buyer (according to the method selected) or take the photo appearing on the season pass.

Continued...
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## Control over the new of passes

- (a) One employee should be placed at the bottom end of each ski lift. This person should either pick-up or examine the pass, depending on whether the pass presented by the skier is valid for one or more lifts. One-lift passes should be torn after being presented.
- (b) The resort manager should periodically observe the employees at the lift gates to make sure that only skiers presenting a valid pass use the ski lifts.

## Control over receipts

- (a) Every day, the sales clerk should return the money and the unsold passes (valid or used) to the accountant, with a reconciliation. Both the accountant and the sales clerk should sign the reconciliation.
- (b) The accountant should reconcile the returned passes and the money with the document showing the number of passes given to the sales clerk. Unused passes should be mutilated so that they cannot be used again.
- (c) The accountant should make bank deposits and accounting entries.
- (d) The resort manager should match bank deposits, entries and reconciliations, at least on a test basis.

### Miscellaneous

Any refund on unused or partly-used passes should be approved by the resort manager and paid by cheque.

NOTE: 1 mark per item to a maximum of 10 marks. Other valid items to receive consideration.

100

END OF SOLUTIONS

## PUBLIC FINANCE ADMINISTRATION 518 EXAMINATION March, 1985

Marks Time: 3 Hours

PART A: Answer TWO of the following questions.

- 25 Q.1
  - (12) (a) Define each of the following terms:
    - i) Market failure
    - ii) Shadow price
    - iii) Discount rate
  - (9) (b) Describe the options available if an analyst wishes to incorporate distributional concerns into a benefit-cost analysis.
  - (4) (c) Benefit-cost analyses of three <u>mutually exclusive</u> projects show the following results:

Project	Present Value of Benefit (millions of \$)	Present Value of Costs (millions of \$)	
A	\$10	\$7	
В	8	9	
С	15	11	

Which project would you recommend? Why?

25 Q.2 The relative size of the public sector (measured in terms of government spending) has grown throughout much of this century.

## REQUIRED:

- (7) (a) Briefly describe which functions and which governments have accounted for most of this growth.
- (18) (b) Describe three explanations that have been put forward to account for this growth, indicating the strengths and weaknesses of each.

- 25 Q.3
  - (9) (a) In allocating a particular function to a level of government in a federal system, what direction might we obtain from considering the factors of economies of scale and variations in tastes or demands?
  - (16) (b) In a federal system, what are the advantages and disadvantages of conditional grants from the viewpoint of the senior government (the donor)? What are the advantages and disadvantages for the junior government (the recipient)?

PART B: Answer TWO of the following questions.

25 Q.4 Many of the concerns addressed by the Royal Commission on Financial Management and Accountability (the Lambert Commission) are still under consideration by the federal government.

## REQUIRED:

- (5) (a) Why was it necessary for the Lambert Commission to address the issue of management and accountability?
- (20) (b) Discuss <u>five</u> of its major recommendations in the areas of personnel administration and/or financial management as discussed in the Douglas G. Hartle article, "The Report of the Royal Commission on Financial Management and Accountability (The Lambert Report): A Review."
- 25 Q.5 The comprehensive evaluation of the effectiveness of all expenditure programs is not possible.

## REQUIRED:

- (18) (a) Discuss three major limitations facing the evaluation of government expenditure programs.
- (7) (b) Given these limitations, what can we expect from the evaluation of federal government spending programs?
- 25 Q.6 Public policy and administration in Canada are significantly influenced by our parliamentary system of government.

## REQUIRED:

(5) (a) Briefly describe the relation between the cabinet and the public service in the executive branch of government.

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- (5) (b) How does the judicial branch act as a check on executive powers?
- (15) (c) Describe five functions of the legislative branch.

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END OF ELMITATION

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# PUBLIC FINANCE ADMINISTRATION 518 EXAMINATION March, 1985 EXAMINER'S

#### General

Performance on this examination was uneven. Questions 2,4, and 6 were answered relatively well, but questions 1,3 and 5 were unsatisfactorily treated. In general, many students did not appear to have understood basic material in sufficient depth, or had not adequately read assigned articles in the lesson notes.

## Specific

- Q.1 Students had difficulty with specific terms, such as shadow price and discount rates. The idea that shadow prices are essentially estimates of opportunity costs was often missed. Discount rates are required in all instances in which benefits and/or costs occur in future years, irrespective of the pattern of these flows. Students discussed the issue of distribution in general, but seemed to have difficulty focusing on the analytical techniques used to integrate distribution into a benefit-cost analysis. Most students answered part (c) correctly. Those who failed to do so were usually wrong because they chose the project with the highest benefit/cost ratio rather than the project with the greatest net benefits.
- Q.2 This question was generally well done. The major problem encountered was in part (b) of the question. Students had some difficulty discussing the strengths and weaknesses of the explanations put forward to account for government growth. What is required is a discussion of how well the explanation corresponds to observed facts, not whether the student likes or dislikes the trend.
- 2.3 In the first part of this question, students had difficulty with the concept of "economies of scale". In part (b), some of the answers were incomplete in that they did not discuss advantages and disadvantages from the viewpoints of both the donor and the recipient governments.
- Q.4 Generally, this question was answered satisfactorily, although students did have some difficulty with the recommendations of the Lambert Commission as they related to federal government agencies and their functions.

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- Q.5 This was the most poorly answered question on the examination. In part (a), many students really only presented one limitation facing program evaluation and discussed variations of that one point rather than identifying three separate problems. Part (b) was also poorly answered. Having failed to identify limitations in the first part of the question, students were then ill-equipped to discuss what useful role program evaluation could play within the confines of those limitations. Many answers concentrated too much on simplistic notions of bureaucratic failure or wrongdoing.
- Q.6 This question was generally quite well done. The question called for a repetition of some thoroughly descriptive material, and most students who attempted this question provided satisfactory answers.

## PUBLIC FINANCE ADMINISTRATION 518 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

#### PART A:

25 Q.1

- (12) (a) i) Market failure. It is defined as a case in which the market fails to allocate resources efficiently. We define an efficient allocation of resources as being that where MC=P. If, because of the presence of public goods, externalities or monopoly power, the market does not allocate efficiently, we say that market failure has occurred.
  - ii) Shadow price. In conducting a benefit-cost analysis, we must always use the opportunity cost of resources. In most instances we take the market price as representing the opportunity cost. However, if market prices differ from opportunity costs (for example, because of externalities), then we must estimate what the true or opportunity costs of these resources are. These estimates are called shadow prices.
  - iii) Discount rate. In any project, benefits and costs occur over a period of time. To properly compare the stream of future benefits and the stream of future costs, we must undertake a procedure called discounting to represent those two streams as lump sum present values. The discount rate is the interest rate used to calculate the present value equivalent of these streams of benefits and costs.
- (9) (b) An analyst has three general choices available to incorporate distributional considerations into a benefit-cost analysis. (1) The first approach is to conduct the analysis proper without taking into account distributional impacts, and append to that report a separate statement of distributional effects. (2) A second possibility is to establish in advance the minimal distributional requirements that the projects under consideration must meet. The analyst will then exclude those projects that do not meet this minimum

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threshold. All projects which do meet the threshold will then be considered without further reference made to distributional impacts. (3) The third and most comprehensive approach is to establish weights to apply to the benefits and costs accruing to each of the groups in question (for example, income groups, racial groups, regions). All benefits and costs will be disaggregated across these groups. The appropriate weighting factors will be applied in each case and then the totals will be recalculated. The great difficulty in this approach involves the selection of the appropriate set of weights to apply to each group.

- (4) (c) The recommended project is Project C because it has the largest net benefit of any of the three projects. Note that even though the benefit-cost ratio is higher for Project A, it is not the recommended choice because our decision rule tells us to select the project with the highest net benefits.
- 25 Q. 2
  - (7) (a) The functional area of government spending that has grown most in relative terms is the area of social services, including items such as health care, social welfare services and education. There has also been a large increase in transfer payments to individuals. Federal government transfers to provincial governments have also grown markedly in relative terms. When we examine the growth of government spending by level of government, we find that the provincial level has grown the most rapidly over the last several decades. The other sector that has grown, although not quite as rapidly, is the local government sector. The federal share of total government spending has declined or remained stable over most of the period.
    - (18) (b) Students may discuss any three of the following five explanations that have been offered to account for the growth in government spending.
      - 1) The first explanation is that externalities have become increasingly prevalent in industrialized societies. These externalities have required more government intervention in the economy to ameliorate their effects. Certainly the problem of negative externalities has become more serious over the last several decades, but the weakness of this argument as a general explanation for the growth of government is that much of the public response to the externality problem has been via regulation or taxation rather than through increased government spending.

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- 2) A second explanation is that, as our society became more urbanized, there was an increase in friction and tension among individuals requiring greater public intervention in the form of police services and law and order activities and some social services. One of the strengths of this explanation is that the provincial and local governments which are responsible for many of these functions have also been the most rapidly growing; thus the explanation appears to fit the data well. A weakness of this theory is that it only examines demand-side factors; it does not indicate how supply is determined in response to these demands.
- 3) The third argument is that many public services are characterized by an income elasticity of demand that is greater than one. That is, as individuals' incomes increase, their demands for these services increase at a faster rate. Services such as education, health care, and possibly some protection services, have been characterized as having income elasticity of demand greater than 1. This theory does, at least partially, correspond to the functions of government that have increased particularly rapidly; however, it is rather a narrow theory and like the previous one is completely demand-side oriented.
- 4) The behavior of self-interest-seeking politicians and bureaucrats is a fourth factor that has been suggested. This theory broadly says that it is in the interest of politicians and bureaucrats to administer as large a budget as possible and therefore there is a built-in bias in favor of larger governments. There is some empirical evidence to support this argument; however, it tends to be purely a supply-oriented argument. Also, based on this argument, we would expect the federal government to be the most rapidly growing because its politicians and bureaucrats are the ones who are most shielded from the direct input of their citizens. However, the data show that it is the provincial and local governments that are growing more rapidly.
- 5) The last argument that has been advanced is the role of economic and social theory, in particular the work of Keynes. This theory argues that the government has an active role to play in promoting economic stability. While this is true and it has certainly provided the theoretical rationale for much government policy in the 1950s, 1960s and early 1970s, it is not clear that the pursuit of Keynesian policy implies a larger government.

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25 0.3

- Considerations of economy of scale suggest that a particular (9) (a) function should be allocated to that level of government that can produce it at the least cost per unit. Thus, services such as national defense would be allocated to the largest national level of government because there tend to be very large-scale economies associated with the provision of this service. Many other functions, such as education, would be allocated to lower level governments because they reach their optimum scale at relatively small population sizes, and there are no further unit cost reductions to be gained by operating these services on a larger scale. Variations in taste across groups that comprise a nation's population is one of the rationales behind a federal system in the first place. If there are significant regional differences with respect to the amount or characteristics of a particular public service, then this service can be more efficiently provided by a number of regional governments. The provision would be efficient in the sense that each regional government could tailor the amount and nature of the service to meet the needs and demands of its own population. If the service was provided by one national level of government, it would probably be provided at a given level and in a particular fashion across the country and thus regional needs would not be necessarily accommodated.
- (16) (b) From the viewpoint of the donor or senior government, the conditional grant allows that government to have influence in the provision of particular services that constitutionally are in the domain of the junior level of government. Thus the senior government can expand its power and influence. In addition to that, through the use of conditional grants, the senior government can adjust for spillovers between the regional or junior governments and thus enhance the efficiency of the public sector as a whole. A disadvantage of a conditional grant, from the perspective of the senior government, is that once the program is in place, the spending decisions are usually made by the regional or junior level of government. Thus a senior government can find itself in a position of spending large amounts of money over which it has very little control.

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For the recipient government, an advantage of conditional grants or any grants is that the spending capacity of that government is increased. Another advantage of conditional grants from the perspective of the receiving government is that the perceived cost of the particular function for which the grant is given is reduced. A disadvantage that provincial governments often claim with respect to conditional grants from the federal government is that these grants distort regional or provincial priorities because the terms of the grant arrangement often coerce the provincial government into spending money on particular services, whereas the government may rather spend it elsewhere.

## PART B:

- 5 Q.4
  - (5) (a) In the 1960s a fundamental decentralization of governmental decision-making ("let the managers manage") led to the elimination of financial and personnel controls of most central agencies. While deputy heads increased their discretionary authority, this discretion was not being satisfactorily monitored. In effect, discretionary authority has not been subjected to a proper system of accountability.
  - (20) (b) In order to rectify this, Lambert made proposals in a number of areas, but the question requires only the summary of the major recommendations in personnel administration and financial management as given by Hartle (Appendix 3.2).

Students may discuss any five of the following for 4 marks each.

- i) In order to effect the personnel and financial changes, certain basic institutional changes are required. The Commission recommends that the Treasury Board be renamed the Board of Management. This new board would have increased powers to include the present staffing and training functions now performed by the Public Service Commission.
- ii) Internal structure of the Treasury Board drastically altered. Two new deputies of equal rank would be in the new Board, a Secretary of Personnel Management and a Comptroller General Secretary of Personnel would be responsible for manpower planning, personnel appraisal, collective bargaining, etc. The Comptroller General would be responsible for financial management, the preparation of the Estimates and the new central agencies input into the Fiscal Plan and evaluation of programs and policies.

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- iii) The new powers recommended for the Secretary of Personnel include new authority to dismiss incompetents in the public service, to control the appointments of assistant deputy ministers, and the establishment of new lines of financial authority within the departments. (Service financial officers in the departments should report directly to the deputy head and be full and active members of the departmental management committees.)
- iv) The Comptroller General is primarily responsible for spearheading the Fiscal Plan for the coming five years. This plan is developed jointly by the central agencies, having the prior approval of the Cabinet Committee on Priorities and Planning (the inner cabinet).
- v) The Management Board is empowered to require deputy ministers to carry out evaluation in specific problem areas with the Comptroller General setting the evaluation standards. The Board is also required to monitor and review the managerial performance of deputies.
- vi) To strengthen this system of managerial accountability to the wider problem of political controls in our parliamentary system, the Lambert Report calls for greater amount of control powers to be placed in the hands of the fifteen Standing Committees of Parliament.
- (18) (a) Students are expected to discuss any three of the following problems facing program evaluation.
  - i) To conduct a rational evaluation, a program should have clearly stated goals. However, most public policy goals cannot be clearly defined because of a lack of consensus or because there are no clear answers in solving a particular problem.
  - ii) Even if the goals of a program are clearly defined, there can still be controversy over what criteria to use in evaluating the program and the suitability of the goals. For example, it is often very difficult to balance efficiency and effectiveness considerations.
  - iii) Rational systems, such as evaluation, tend to disregard the basic necessities of the parliamentary process, and the bureaucracy gains power at the expense of the executive and the legislature.

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- iv) It is often impossible to separate one program's effects from the context of effects of other programs or from the general environment.
- v) Since funds for managing public policy lapse at year's end, the "good" managers face a "Catch 22" situation: the more they pay attention to economy and efficiency, the more they place themselves under fiscal strain; the less they do so, the less they can live with themselves.
- vi) Another constraint is the absence of an information base which is accurate, readily available and which can make causal connections between program objectives and outcomes.
- (7) (b) The actual scope for evaluation is indicated by the fact that only about 27% of federal expenditures are discretionary and thus candidates for significant change. Thus, program evaluation can probably make relatively small but measurable savings. Furthermore, evaluations may expose gaps in performance measurement systems and encourage efforts to fill them.
- 25 Q.6
  - (5) (a) The executive branch carries out the laws passed by the legislature. This branch includes the political executive (i.e., the Cabinet) and the public service. The Cabinet proposes policies and expenditures, protects the anonymity of public servants and controls administrative powers. The public service is responsible for the execution or implementation of policy decisions.
  - (5) (b) The judiciary restrains public administrators from unconstitutional, illegal, and arbitrary decisions. Moreover, the judiciary protects citizens against excessive exercises of power authority under the principle of the Rule of Law.
  - (15) (c) The legislative branch is the principal institution for holding the executive accountable and responsible for the exercise of public authority. More specifically, its functions include:
    - assenting to new legislation and influencing its content;
    - ii) providing a pool of talent from which leaders are drawn;
    - iii) reflecting public opinion and helping to educate the public about government;
    - iv) scrutinizing government action;
    - v) advancing constituency interests.

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END OF SOLUTIONS
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## PUBLIC FINANCE ADMINISTRATION 518 ATMINISTRATION June, 1985

Marks Time: 3 Hours

## PART A: Answer TWO of the following questions:

- Q.1 (18) (a) In benefit-cost analysis what is the role of discounting? What is the role of shadow pricing?
  - (7) (b) A program can be operated at a variety of possible sizes. The following data are available as a result of a benefit-cost analysis:

Size	Present Value of Benefits	Present Value of Costs
	(\$ million)	(\$ million)
1	8	10
2	12	12
3	16	13
4	20	14
•	25	18
5	26	24
6 7	27	28

Should this program be undertaken? If so, what is the optimal size?

- 25 Q.2
  (16) (a) Two types of problems that often arise in a federal system are (i) wealth disparities across regions of the country, and (ii) externalities or spillovers between jurisdictions.

  Describe a system of inter-governmental grants to deal with each of these problems.
  - (9) (b) Describe the Canadian Established Programs Financing (EPF) arrangements. Include a discussion of the rationale for EPF.
- 25 Q.3 (10) (a) Define "tax expenditures". Give three examples of a tax expenditure.
  - (15) (b) Suppose that, in order to discourage the use of aerosol sprays, the government levies a tax on all products sold in these spray cans. Analyze the incidence of this tax.

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## PART B: Answer TWO of the following questions:

Q.4 The introduction of the policy and expenditure management system (PEMS) in the federal government involved the creation of new central agencies as well as the assignment of new roles and responsibilities to operating departments.

## REQUIRED:

- (5) (a) Briefly define the nature of these new central agencies in terms of the "ministry of state" concept.
- (10) (b) Describe the roles played by the Ministries of State for Social Development and Economic and Regional Development in the PEMS before these agencies were dissolved.
- (10) (c) Outline the new roles and responsibilities for operating departments under the PEMS.
- 25 Q.5 The doctrine of ministerial responsibility is central to public finance and management in Canada.

## REQUIRED:

- (10) (a) Describe the doctrine as it relates to Cabinet Ministers.
- (5) (b) Briefly identify two ways in which the doctrine views public servants.
- (10) (c) Discuss why information is such a key part of financial accountability and visibility.
- Q.6 While the policy formulation-policy execution concept is not an accurate description of governmental practice, in theory it is a desirable principle.

## REQUIRED:

- (4) (a) Briefly define the policy formulation-policy execution concept.
- (15) (b) Describe three factors that have been put forward to explain why the concept is not an accurate description of government.
- (6) (c) Outline briefly three reasons why the concept is still a desirable principle of parliamentary government.

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END OF EXAMINATION

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## CERTIFIED CHARLES ACCOUNTANTS' ASSOCIATION OF CAMADA

# PUBLIC FINANCE ADMINISTRATION 518 EXAMINATION June, 1985 EXAMINER'S COMMENTS

### General

Overall, this exam was well done as evidenced by the relatively high pass rate. A problem that did recur was an inability to sharply and analytically answer several of the questions. Students had a general familiarity with the topics involved but could not provide answers that went beyond this general rather superficial level.

## Specific

- Q.1 Students had some difficulty with each of the concepts in part (a) of this question. In discussing discounting, some students were unable to indicate clearly that they understood the concept of the time value of money. In discussing shadow prices, students were able to describe the concept using examples, but not in terms of the general principles. Part (b) of this question was well done.
- Q.2 In part (a) the discussion of wealth disparities was well done. The discussion of externalities and spill-overs was less satisfactory, because students were unable to demonstrate clearly that they knew what externalities or spill-overs were. The answers in part (b) were satisfactory, although many students were unable to provide an adequate discussion of the rationale for EPF.
- Part (a) of this question was well done. Part (b) probably caused the most difficulty on this examination. Some students did this question well, but others were only able to discuss the impact of the tax in very general and inexact terms. They had difficulty providing an analytically sound discussion of the tax incidence.
- 2.4 The answers to part (a) of this question were generally not sharp. Students discussed central agencies in general, but did not relate that general discussion to the ministries of state. Part (b) was satisfactorily done. In part (c) several students confused the roles of operating departments with central agencies.
- Q.5 The first two parts of this question were well done. In part (c), many students discussed the importance of information as it related to accountability of government to parliament. They did not go on to discuss the role of information as it relates to administrative accountability.
- The first part of question 6 was well done. In part (b), answers focused on bureaucratic power, but did not go beyond this rather obvious point. In part (c), students were generally familiar with the topic and their discussions were generally in the right direction. However, the answers tended to be very superficial and did not focus sharply on the topic.

# PUBLIC FINANCE & ADMINISTRATION 518 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks

Time: 3 Hours

## PART A:

(18) (a)

25 Q.1

In almost all projects evaluated with benefit-cost analysis, the benefits and costs occur over a number of years and often occur in irregular fashion, that is, costs and benefits vary from year-to-year. It is wrong to simply add up the annual costs and annual benefits and compare them, because a dollar this year has a different value than a dollar one year from now or ten years from now. This is true even in the absence of inflation. It simply reflects individuals' taste for present consumption over future consumption. Therefore, in order to make these two streams of future benefits and costs comparable, we must adopt the procedure known as discounting. The rate at which future values are discounted to present value equivalents is known as the discount rate.

In evaluating benefits and costs, one must always use social values or opportunity costs. In most cases analysts can accept market prices as being equivalent to these opportunity cost values; that is, if the market in which the price is established is fairly efficient, it will automatically register a price that reflects opportunity costs and therefore one can proceed in a straightforward fashion simply by using market prices. However, if the market price does not reflect efficiency values because of externalities, excess resource capacity, monopoly pricing or other similar factors, then if the analyst uses these market prices he/she will not be estimating social opportunity costs. Other procedures must be adopted to estimate what these social opportunity values are. These prices are called shadow prices and the process of estimating these values is called shadow pricing. It is important to estimate shadow prices in these circumstances. Otherwise the final results of the benefit-cost analysis will not reflect efficiency values and therefore the initial purpose of the whole exercise will be thwarted.

(7) (b) The program in question should be undertaken because for some sizes benefits exceed costs. The optimal size of the program is size 5 because at this point net benefits or the difference between benefits and costs are maximized. Note that this is not the point at which the benefit-cost ratio is maximized. The decision rule tells us to select that option which has the largest net benefits associated with it, not the largest benefit-cost ratio.

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25 Q.2

If the governments within a federal system wish to moderate inter-regional disparities and wealth and do so through a system of grants, then unconditional transfers would be appropriate. The problem in this case is that some regions simply do not have the fiscal capacity to provide the same range and levels of services as the governments in the wealthier regions. A straightforward solution to this problem would be to simply increase the fiscal capacity of the governments of the poorer regions. The best way to do this would be through a system of unconditional grants. These grants would not constrain the decisions of the receiving government with respect to how the increased funds should be allocated.

If the problem is one of externalities or spillovers between jurisdictions, then there will be inefficiencies in the provision of these services. In particular, the benefits accruing to the province that receives the spillover will not be taken into account by the decision-makers in the province that generates the spillover. Thus, because these decision-makers ignore some of the benefits of their services, they will decide to provide less than the optimal quantity.

A system of inter-governmental conditional grants can be used to correct this inefficiency. By offering a conditional grant that is tied to the provision of this service the senior or national level of government can effectively reduce perceived per-unit cost of the service to the producing government. With its own cost reduced the government will then choose to increase its provision of the service. Thus, by adjusting the amount of the conditional grant it is, in theory, possible to induce the providing province to increase the provision of the service until it equals the optimal amount.

The EPF system encompasses a set of cash transfers and tax (9) (b) point transfers from the federal government to the provinces in aid of provision of health care and post-secondary education services. However, except for some very general requirements, there are really no strings attached to these grants and therefore the provinces are not committed to spending this money directly on these services. Rather, the provinces tend to look on these transfers as simply additions to their general revenues, part of which they spend on health and education, and part of which they spend on other services. The EPF arrangements commenced in 1977 as a replacement for systems of conditional grants for health and post-secondary education that existed before then. The earlier regime was regarded as unsatisfactory by both the federal government and the provinces.

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The federal government saw itself spending large sums of money on items over which it had very little control, and the provinces saw themselves as being coerced into spending money on health care and post-secondary education that they would rather spend elsewhere. Both found the EPF arrangements to be an improvement. From the perspective of the provinces, the conditionality of the grants was for all intents and purposes removed, and from the perspective of the federal government, the amount of the grants was to be determined separately from the actual cost of providing these services.

- 25 Q.3
  - (10) (a) Tax expenditures can be defined as special provisions in the income tax laws that give preferential treatment to individuals and corporations who are in special circumstances or who behave in specified ways. Among the examples of tax expenditures that students may cite are the following:
    - Charitable donation deductions
    - Deductions for contributions to retirement savings plans
    - Medical care deductions
    - Child care deductions
    - Depreciation allowances
    - Investment credit
    - and any one of m number of different tax preferences that are granted for investments in particular sectors of the economy or particular regions of the country.
  - (15) (b) To analyze the incidence of this tax the students should outline an analysis that is similar to that described in Figure 10-1 of the Lesson Notes. Determining the incidence of tax means to determine who in the final analysis actually bears the burden of the tax. To answer that question we must know something about the conditions of supply and demand for the products in question. In general, we would expect that a portion of the tax would be shifted forward and ultimately paid by consumers of the products. A portion of the tax would remain unshifted and ultimately be paid by the producers of the product. The shares borne by the consumers and producers would depend upon the elasticities of the demand and supply curves. The more elastic is demand relative to supply, the less of the tax will be borne by consumers and the more will be borne by producers. In more intuitive terms, this means that the more flexibility that consumers have to substitute away from the taxed product, the less will its price increase and the less tax will they ultimately be forced to pay. The more inelastic consumer demand or the less flexibility consumers have to substitute away, the more the price will rise and the more of the tax will the consumers ultimately bear.

## PART B:

- 25 0.4
  - (5) (a) The Ministries of State for Social Development and Economic Development were both small, relatively new central agencies.

    Both served as secretariats to Cabinet policy committees and as financial and general policy advisors.
  - (10) (b) Each engaged in long-range planning functions for its sector, administered the forecast finances for the programs within its envelope, and attempted to ensure policy coordination throughout its sector. In addition, the ministries initiated proposals. Fundamentally, their role was to determine:
    (i) whether the potential increase in expenditures from a proposal could be met, (ii) how the proposal fitted with ongoing sector policies, and (iii) how feasible the proposal was administratively.
  - (10) (c) The operating departments and agencies are traditionally the spenders, yet under the envelope system, are also expected to share responsibility for expenditure control. Their role involves suggesting new program proposals in line with government and policy committee priorities, bargaining with Treasury Board and the appropriate Ministry of State for the allocation of funds, and drafting multi-year strategic overviews and operational plans.
- 25 Q.5
  - (10) (a) The doctrine of ministerial responsibility is the constitutional doctrine that ministers are responsible both individually and collectively to Parliament for the conduct of government. It assumes that each minister is responsible for his or her department. The concept of collective responsibility imposes an obligation on all ministers to support all of the government's policies in their public statements or, where such support cannot be given, to resign. These assumptions tie the system of accountability to the government of the day. That government in turn is subordinate in its use of its discretionary powers to Parliament.
  - (5) (b) Public servants are held to be ministerial advisors. Moreover, the doctrine holds the view that public servants must be anonymous and neutral in doing their work. Confidentiality is also derived from this system of responsibility.
  - (10) (c) Information is a key process device of financial accountability. Such information must be accurate and adequate to ensure a measure of control by the Cabinet and individual ministers. This is even more important for government because the measurement of the efficient use of resources is very difficult in government. While the principal objectives

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of business can be stated in financial terms because its nature is economic performance, governmental objectives touch on the hard-to-measure criteria of social, cultural and political considerations.

Another process criteria of fundamental importance is financial visibility. Since Parliament requires information that discloses the manner in which funds are utilized, the financial system must seek to make public all relevant financial data. This means that all financial statements to Parliament must include how the public funds are spent in terms of activities and standard objectives for all programs administered by the federal bureaucracy writ large. Financial disclosure is a fundamental process to ensure probity and integrity in the administering of the public resources.

25 Q.6

- (4) (a) The policy formulation-policy execution concept (also known as the policy-administration dichotomy) holds that politicians make or formulate policy, and public servants implement or execute these policy decisions.
- (15) (b) The concept has lost validity because of several events: the growth of prime ministerial power, of executive power, and also administrative discretionary power, exemplified by the increase in "executive federalism". Consequently, the role of the legislative branch had diminished and the power of the bureaucracy in policy formulation and execution has increased.
- (6) (c) The concept is still desirable in order to maintain a system of parliamentary accountability; to promote the professionalization and neutrality of the public service; and to promote the efficient management of the government's business.

 $\mbox{{\tt NOTE:}}\quad \mbox{On parts (b) and (c) the student would be expected to provide some further details.$ 

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END OF SOLUTIONS

## ADVANCED ACCOUNTING 521 EXAMINATION December, 1984

Marks Time: 3 Hours

Q.1 Parent Ltd. acquired 80% of the voting shares of Sub Ltd. on January 1, 1983 for \$669,000. The financial statement of Sub Ltd. is as follows:

# Sub Ltd. Balance Sheet as at January 1, 1983

	Book Value	Fair Market Value
Cash	\$ 45,000	\$ 45,000
Accounts Receivable	110,000	130,000
Inventory	280,000	320,000
Land	310,000	400,000
Depreciable Fixed Assets, net	460,000	405,000
Total	\$1,205,000	
Current Liabilities	\$ 250,000	\$250,000
Common Shares	300,000	_
Contributed Surplus	105,000	_
Retained Earnings	550,000	_
Total	\$1,205,000	

The inventory will be sold and the accounts receivable collected within 6 months, and the depreciable fixed assets will be depreciated over 10 years, straight-line, with no salvage value. Any goodwill arising on consolidation will be amortized over 20 years, straight-line.

During 1983, Sub Ltd. sold inventory to Parent Ltd. for \$150,000 with a 20% markup on retail. At the end of 1983, \$30,000 (at retail) of these goods were still in the inventory. Parent Ltd. sold \$200,000 of goods to Sub Ltd. during 1983, with a 25% markup on retail, and \$40,000 (at retail) of these were still in inventory at the end of 1983. All of these goods remaining in inventory were sold during 1984.

Also, during 1983, Parent Ltd. sold a fixed asset to Sub Ltd. for \$130,000. It had cost Parent Ltd. \$200,000 and was 40% depreciated. Both companies depreciate over 10 years, straight-line, with a full year's depreciation in the year of acquisition and no depreciation in the year of disposal and no salvage value but, for intercompany transfers, the acquiring company depreciates the asset over the residual life of the asset.

During 1984, Parent Ltd. sold \$180,000 of goods to Sub Ltd. with a 25% markup on retail and \$50,000 (at retail) of these goods were in inventory at the end of 1984. In addition, Sub Ltd. sold goods to Parent Ltd. for \$220,000 with a 20% markup on retail and \$60,000 (at retail) of these were still in inventory at the end of 1984. All of these remaining goods were sold during 1985.

The following are the financial statements of the two companies at December 31, 1984:

## Balance Sheets as at December 31, 1984

	Parent Ltd.	Sub Ltd.
Cash	\$ 55,000	\$ 40,000
Accounts Receivable	140,000	110,000
Inventory	400,000	320,000
Land	670,000	385,000
Depreciable Fixed Assets, net	864,000	520,000
Investment in Sub Ltd.*	669,000	
Total	\$2,798,000	\$1,375,000
Current Liabilities	\$ 98,000	\$ 175,000
Common Shares	550,000	300,000
Contributed Surplus	-	105,000
Retained Earnings	2,150,000	795,000
Total	\$2,798,000	\$1,375,000

<sup>\*</sup> Parent Ltd. has decided to keep the investment account on a *cost* basis since there is no doubt that they will be consolidating the financial statements.

## Income Statements for the year ended December 31, 1984

	Parent Ltd.	Sub Ltd.
Sales	\$ 852,000	\$ 789,000
Less: Cost of Goods Sold	542,000	479,000
Depreciation	120,000	110,000
Other Expenses	80,000	70,000
Net Income	\$ 110,000	\$ 130,000

Neither company paid any dividends during 1983 or 1984.

## **REQUIRED:**

Calculate the following, considering all dates carefully:

- (5) (a) Consolidated goodwill at December 31, 1984.
- (4) (b) Minority interest at December 31, 1984.
- (4) (c) Investment income, under the equity method, for 1983.
- (5) (d) Consolidated net income for 1984.
- (2) (e) Consolidated balance of accounts receivable at December 31, 1984.
- (6) (f) Consolidated balance of depreciable fixed assets at December 31, 1984.
- (4) (g) Consolidated balance of inventory at December 31, 1984.

NOTE: This question requires an organized approach and to obtain part marks it will be necessary for workings to be set out in an orderly manner. If any single part of the question cannot be solved the student should work around that part and solve those parts that can be done. If an assumption is required, *briefly* state the assumption and proceed, but do not assume something that is the opposite of the data given. It is essential that the student read the question very carefully.

- Q.2 (a) Prepare journal entries to record in the General Fund of the City of Endsville the following *independent* events:
  - (1½) i) \$25,000 of cash is received from taxpayers who have paid their taxes in advance.
  - (1½) ii) \$45,000 of cash is received from miscellaneous sources and has not yet been accrued.
  - (2) iii) \$179,000 of cash has been received from the payment of taxes both current and delinquent. The delinquent portion was \$38,500.
  - (2) iv) An invoice for \$9,000, which had been approved for \$8,400, was received.
  - (1) v) The General Fund received \$3,500 of materials and supplies from the Stores Fund, none of which was paid for at this time.
  - (1½) vi) Just before the end of the year, a purchase order for \$3,680 was issued to a supplier.
  - (1½) vii) \$35,000 of taxes receivable became delinquent at the end of the year.

**NOTE:** Marks will be deducted for journal entries which are unnecessary or repetitious.

- (7) (b) Explain the meaning of an Enterprise Fund, i.e., what is its function and why would it be established? Give *two* examples of this type of Fund. What are its characteristics?
- 22 Q.3
  - (8) (a) "If there is no virtual certainty with regard to a tax loss carry-forward, the accounting benefit simply cannot be recognized in the period the loss occurs."

## REQUIRED:

Write a response to this quote. Be precise.

(14) (b) On January 1, 1984, Rope Ltd. had a credit balance in the deferred income tax account of \$683,000. The net book value of assets at that date was \$2,641,000 and the undepreciated capital cost (all Class 6 at 20%) was \$1,106,513. Depreciation for the year (1984) was \$250,000 and capital cost allowance was \$199,000. During the year, there was a disposal of an asset which had cost \$120,000 and was 40% depreciated; the proceeds from the disposal were \$10,000. There was a loss carry-forward from prior years of \$140,000 and this loss had been recorded with virtual certainty. There were no other differences between taxable income and accounting income. The tax rate for the year was 40% and the net income before income tax was \$900,000.

## REQUIRED:

Prepare all tax-related journal entries for the year 1984.

- Q.4 At the end of the fiscal year, December 31, 1984, Export Ltd. finds itself with two accounts receivable in pesos:
  - i) from a sale on July 1, 1984, and due to be collected on December 1, 1985, for 1,500,000 pesos;
  - ii) from a sale on September 1, 1984, and due to be collected on December 1, 1987, for 3,000,000 pesos.

## Exchange rates (spot):

\$1 = 160  pesos	July 1, 1984
\$1 = 174  pesos	September 1, 1984
\$1 = 180  pesos	December 31, 1984
\$1 = 110  pesos	December 1, 1985
\$1 = 90  pesos	December 31, 1985

## REQUIRED:

- (13) (a) Prepare the journal entries for December 31, 1984, and December 1 and December 31, 1985, assuming that the foreign exchange risk is not hedged or eliminated.
- (2) (b) Describe a method of hedging or eliminating the foreign exchange risk implied in the question. Be precise.
- Q.5 (a) Rope Ltd. is having some difficulty calculating some of the figures needed to do the *Handbook* Section 4510 supplementary information. The company has the figures but needs some assistance in putting them together in the correct manner and has come to you for advice.

The current cost of the property, plant and equipment at January 1, 1984, is \$567,000 and the current cost at December 31, 1984, is \$852,000. Both of these figures are gross of depreciation. The assets were estimated to be 40% depreciated at the beginning of the year and the depreciation for the year is 5%, straight-line with no salvage value. There were acquisitions throughout the year and these cost \$120,000 and had a current cost at the end of the year of \$144,000. There were disposals throughout the year and these had a current cost at the beginning of the year of \$98,000 and were estimated to be 75% depreciated. The proceeds of the dispositions were \$25,000. The company's policy is to take no depreciation in the year of disposal and a full year's depreciation in the year of acquisition.

## REQUIRED:

- (4) i) Calculate the depreciation expense for current cost for 1984, according to Section 4510 of the *Handbook*.
- (5) ii) Calculate the "backlog depreciation adjustment".
- (6) (b) Rope Ltd. has preferred shares and these pay dividends of \$135,000 per year. The company is quite uncertain as to how these should be treated under Section 4510.

## **REQUIRED:**

Discuss the presentation of the preferred dividends in the Income Statements as set out in Appendix B of *Handbook* Section 4510. Be precise.

## ADVANCED ACCOUNTING 521 EXAMINATION December, 1984 EXAMINER'S COMMUNIS

#### General

There are still some students who are not reading the question. For example, in Question 1, some students did not seem to realize that there were two years, parts (c) and (d), even though the question emphasized this with italics. This caused a major loss of marks. Some students were preparing their workings in a totally disorganized manner which caused them to make careless mistakes and made it almost impossible to assign part marks. Workings should be neat and organized so that mistakes are avoided and part marks may be assigned. Some students are attempting the examination without a thorough knowledge of the relevant areas of the CICA Handbook, especially the areas of foreign currency translation and Section 4510.

## Specific

- Q.1 This question was reasonably well done. About 40% of students could not do "mark-up", and 30% could not calculate the depreciation add-back. The majority did not realize that the value for depreciable fixed assets must be adjusted, in the preparation of the consolidated financial statements, so that the consolidated values are equal to what they would have been before the intercompany transaction. About 25% of the students prepared their workings in awkward ways that took excessive amounts of time (5 to 10 pages of workings) which then left them short of time on the other questions. Some students were not at all certain what to do when faced with negative goodwill, even though the Handbook is quite clear.
- $_{\text{Q}}$ .2 Part (a) was quite well done and the only problems were entries (i) and (v).
  - Part (b) was reasonably well done. The problem areas were that the students did not differentiate between expense and expenditure and that the examples given were either the same (water and sewer systems of a city), or they were wrong (libraries are not enterprise funds because they do not charge the user a fee for service with the intention of cost recovery).
- Part (a) was not well done in that many students either stated that the principle of conservatism prevented recognition of the loss benefit in the period of the loss, or stated that only the credit balance of the DIT account could be recognized. Also many students were confused about reasonable assurance and made some statements that were not in the <a href="Handbook">Handbook</a>. Giving a definition of virtual certainty was not worth any marks.

Continued ...

- Part (b) was reasonably well done. The entries giving the most problems were the \$56,000 entry regarding the loss carry forward, and the calculation of the amount of the tax payable. (These entries could be combined.)
- Q.4 Part (a) confused students somewhat in that about 40% did not see the deferral of the loss, while those who did see it had trouble either doing the calculations or got their dates mixed up.
  - Part (b) was very simple and most students answered correctly. A few gave answers that reflected no thought: for example, "the problem was that you would be receiving pesos in the future and were thus exposed to an exchange risk when you translated these into dollars". About 15% of students suggested buying pesos and putting them in a bank account. This would mean that you had double the amount of pesos to convert to dollars in the future and you have doubled your exchange risk.
- Q.5 About 40% of students had spent some time on this topic and were well prepared for part (a). The remainder had problems with part (a), ranging from careless mathematical errors to apparent ignorance of the whole topic. Some students used methods to solve the problem that were extremely confusing to themselves; they would be advised to look at the notes or Section 4510 itself.
  - Part (b) was generally very unsatisfactory, about 85% obtaining 2 marks or less. This indicates that students are not reading the <a href="Handbook">Handbook</a>, since the concept underlying current cost is capital <a href="Maintenance">maintenance</a>, and this relates to the net income to common shareholder concept, which is demonstrated in Examples B and C in Appendix 2 of the Handbook.

## ADVANCED ACCOUNTING 521 EXAMINATION December, 1984 SUGGESTED SOLUTIONS

20 01	n 1 '		¢ ((0,000
30 Q.1	Purchase price		\$ 669,000
	Less .8(\$955,000)		764,000 \$191,000 Minority Interest
	Excess Accounts		\$ (95,000)
	Receivable	.8(130,000-110,000)	-16,000
	Inventory	.8(320,000-280,000)	-32,000
	Land	.8(400,000-310,000)	-72,000
	Depreciable		
	Fixed Assets	.8(405,000-460,000)	<u>+44,000</u>
	Goodwill		\$(171,000)

Marks

Negative goodwill cannot exist under the *Handbook* rules and must be reallocated to the non-monetary assets. Any allocation is arbitrary, but it cannot be to the accounts receivable. Considering its effect on income, the best allocation would be to take the inventory revaluation to zero and increase the depreciable fixed amount by the residual. Thus:

Excess		\$ (95,00	00)	
Accounts Receivable		-16,00	00	
Inventory Land		-72,00		
Depreciable Fixed Assets		+183.00	00/10=18,300 i	increase in income
Tived Madeta	Goodwill	\$ 0		
	Subsidiary's Shareholder's Equity 1983	Income 1983	Income 1984	Subsidiary's Shareholder's Equity 1984
Net Income/Assets +/- UPSTREAM	\$ 955,000	\$115,000	\$130,000	\$1,200,000
Type 1 Adjustments		0	0	0
Type 2 Adjustments		-6,000	+6,000 -12,000	(A) 0 (B) -12,000
Total	\$ 955,000	\$109,000	\$124,000	\$1,188,000
-Minority Interest 20%	-191,000	-21,800	-24,800	-237,600
Total	\$ 764,000	\$ 87,200	\$ 99,200	\$ 950,400

Time: 3 Hours

	Subsidiary's Shareholder's Equity 1983	Income 1983	Income 1	984	Subsidiary's Shareholder' Equity 1984
+/- DOWNSTREAM					
Type 3					
Adjustments	+16,000	-16,000	0	(C)	0
Land	+72,000	0	0		+72,000
Depreciable					
Fixed Assets	-183,000	+18,300	+18,300		-146,400
Type 4 Adjustments					
Inventory		-10,000	+10,000	(D)	0
, and the second second			-12,500	(E)	-12,500
Fixed Assets		-10,000	0	(F)	-10,000
		+ 1,666	+ 1,666	(G)	+ 3,332
Investment Income		\$ 71,166	\$116,666		
Account Balance	\$ 669,000	\$ 71,166	\$116,666	5	856,832

## **NOTES:**

- (A) Intercompany profit in beginning inventory, subsidiary to parent.
- (B) Intercompany profit in ending inventory, subsidiary to parent.
- (C) Accounts receivable revaluation from purchase, amortized to the first year.
- (D) Intercompany profit in beginning inventory, parent to subsidiary.
- (E) Intercompany profit in ending inventory, parent to subsidiary.
- (F) Intercompany profit from sale of fixed asset, parent to subsidiary.
- (G) Excess in depreciation created by the sale of the fixed asset, parent to subsidiary.
- (5) (a) Consolidated goodwill is \$0 at December 31, 1984.
- (4) (b) Minority interest is \$237,600 at December 31, 1984.
- (4) (c) Equity method investment income for 1983 is \$71,166.
- (5) (d) Consolidated net income for 1984 is \$110,000 + 116,666 = \$226,666.
- (2) (e) Consolidated balance of accounts receivable is \$140,000 + 110,000 = \$250,000.
- (6) (f) Consolidated balance of depreciable fixed assets at December 31, 1984 is:  $\$864,000 + 520,000 + 70,000 76,667 146,400 = \underbrace{\$1,230,933}_{\$76,667} = \$200,000 130,000)$
- (4) (g) Consolidated balance of inventory at December 31, 1984 is: \$400,000 + 320,000 12,000 12,500 = \$695,500.

Q.2 (a)					
(1½)	i)	DR CR	Cash Taxes Collected in Advance	\$ 25,000	\$ 25,000
(1½)	ii)	DR CR	Cash Revenue	\$ 45,000	\$ 45,000
(2)	iii)	DR CR CR	Cash Taxes Receivable - Current Taxes Receivable - Delinquent	\$179,000	\$140,500 \$ 38,500
(2)	iv)	DR CR	Expenditures Accounts Payable	\$ 9,000	\$ 9,000
		DR CR	Reserve for Encumbrances Encumbrances	\$ 8,400	\$ 8,400
(1)	(v)	DR CR	Expenditures Accounts Payable	\$ 3,500	\$ 3,500
(1½)	vi)	DR CR	Encumbrances Reserve for Encumbrances	\$ 3,680	\$ 3,680
(1½)	vii)	DR CR	Taxes Receivable - Delinquent Taxes Receivable - Current	\$ 35,000	\$ 35,000

(b) An Enterprise Fund is a self-sustaining fund which finances a service to the users by means of a charge to the users which will cover all or most of the costs involved.

(1½) Basically these funds are the same as any business venture, using revenue and expense concepts, rather than revenue and expenditure, and would look very

(1) similar to a profit-oriented firm. The reason for establishing such a fund would be

(1½) to isolate the costs for providing a service and pass these costs on to the users. Examples would be the water systems of most cities, airports and ferry systems.

Q.3 (a) A "no virtual certainty" situation does not mean that the loss benefit cannot be realized. It can, but with specific restrictions.

The benefit recognized is to be the lesser of:

- (2) -the tax loss times the future tax rate, if enacted;
- (2) -the *credit* balance of the Deferred Income Tax account;
- (2) -(depreciation CCA) × tax rate\* × carry-forward period in years.

\*weighted average of Deferred Income Tax account

(b) 
$$$683,000/(2,641,000 - 1,106,513) = .4451$$

$$\begin{array}{r} $900,000 \\ +250,000 \\ \hline -199,000 \\ \hline \$ 951,000 \\ +62,000 \\ \hline \$ 1,013,000 \\ \hline \times .4 = \underline{\$380,400} \\ \hline \$ 405,200 \\ \hline -56,000 \\ \hline \$ 349,200 \\ \end{array}$$

Continued.

18

(4)	DR CR	Tax Expense Tax Payable	\$405,200	\$405,200
(3)	DR CR	Deferred Income Tax Income Tax Expense \$(250,000 - 199,000) × .4451 = \$22,700	\$ 22,700	\$ 22,700
(4)	DR CR	Deferred Income Tax Income Tax Recovery \$10,000 - (120,0004 (120,000)) = \$-62,6 Decrease in Future CCA Decrease in Future NBV 72,000	\$ 27,596 000	\$ 27,596
		\$62,000	× .4451 =	\$ 27,596
(3)	DR CR	Tax Payable Deferred Income Tax $$140,000 \times .4 = $56,000$	\$ 56,000	\$ 56,000
15 Q.4 (2)	(a) <b>Decem</b> DR CR	Loss Accounts Receivable \$(1,500,000/180 - 1,500,000/160) = \$-1,04	\$ 1,042	\$ 1,042
(1)	DR CR	Deferred Exchange Loss Accounts Receivable (3,000,000/180 - 3,000,000/174)	\$ 574	\$ 574
(2)	DR CR	Loss Deferred Exchange Loss \$574/39 = 14.72 × 4 = \$59	\$ 59	\$ 59
(2)	Decen DR CR CR	Cash Accounts Receivable Gain \$1,500,000/110 = \$13,636	\$13,636	\$ 8,333 \$ 5,303
(2)	Decen DR CR	Loss Deferred Exchange Loss \$14.72 \times 12 = \$177\$	\$ 177	\$ 177
(2)	DR CR	Accounts Receivable Deferred Exchange Loss \$3,000,000/90 = 33,333 - 16,666 = \$16,66	\$16,667 <u>7</u>	\$16,667
(2)	DR CR	Deferred Exchange Gain Gain \$16,667/23 = 725 × 12 = \$8,700	\$ 8,700	\$ 8,700

(2) (b) Forward foreign exchange contract to sell pesos on day they would be received.

15 Q.5 (a) 
$$(4) i) $567,000 - 98,000 = $ 469,000 \\ $852,000 - 144,000 = $ 708,000 \\ \hline $1,177,000/2 = 588,500 \\ + $ 120,000 \\ \hline $708,500 \times .05 = $35,425$$

(5)	ii)	Gross Current Cost	Accumulated Depreciation	Net Current Cost
	Opening	\$567,000	\$226,800	\$340,200
	Additions	120,000	0	120,000
	Depreciation Expense	0	35,425	-35,425
	Disposals	-100,000	-75,000	-25,000
	Plug	265,000	196,175	68,825
	Closing	\$852,000	\$383,400	\$468,600

Thus, backlog depreciation adjustment is \$196,175.

(6) (b) In Example A, the preferred dividends are not included since the statement is just a current cost statement and there is nothing about calculating income under current cost that requires the inclusion of preferred dividends. But under Examples B and C, the dividends are included because both of these statements acknowledge that the statement is being prepared for the common shareholder. The definition of the term "common" is that of the residual equity theory, where common are those shares that are fully participating. Thus the dividends of any shares that are not fully participating would be deducted from the calculation of income under Examples B and C.

100 END OF SOLUTIONS

## ADVANCED ACCOUNTING 521 EXAMINATION March, 1985

Marks Time: 3 Hours

10 Q.1 Parent Ltd. owns 3,200 of the outstanding voting shares of Sub Ltd. having purchased them for \$355,000 two years ago, on January 1, 1983. Sub Ltd. has the following shareholders' equity section as of December 30, 1984.

Common shares, no par value, 4,000 issued and outstanding Retained earnings \$ 37,500 450,000 \$487,500

Sub Ltd., on orders from Parent Ltd., purchased 400 shares from the minority interest shareholders for \$32,000. The 1983 Net Income for Sub Ltd. was \$68,000 and for 1984, it was \$76,000. Any excess arising from the purchase of the shares was allocated to goodwill, which is to be amortized over 20 years, straight-line. No dividends were paid in 1983 and 1984.

## **REQUIRED:**

Calculate the correct balance in the investment account (assuming that a consolidation will not be prepared) in accordance with the CICA *Handbook* as of December 30, 1984 (before the treasury stock transaction). Discuss the treatment on Parent's books of the subsidiary's treasury stock transaction, i.e., if a journal entry is required, prepare the journal entry and explain it. If no journal entry is required, discuss why.

Q.2 Both West Ltd. and East Ltd. have December 31 year-ends. On December 1, 1984, both companies decided to pool. West Ltd. issued 25,000 new voting shares to the shareholders of East Ltd. in exchange for all the voting shares of East Ltd. The December 1, 1984 financial statements of the two companies are presented below:

	December West 1	,	December 1, 1984 East Ltd.		
	Book Value	FMV*	Book Value	FMV*	
Current assets Fixed assets, net Goodwill Total	\$ 130,000 878,000 54,000 \$1,062,000	\$147,000 989,000	\$ 190,000 686,000 88,000 \$ 964,000	\$230,000 949,000	
Current liabilities Long-term liabilities Common shares** Retained earnings	\$ 80,000 300,000 250,000 432,000 \$1,062,000	\$ 94,000 350,000	\$ 85,000 400,000 25,000 454,000 \$ 964,000	\$ 90,000 460,000	

<sup>\*</sup> Fair Market Value

<sup>\*\*</sup>The shares of West Ltd. have a par value of \$10 and there are 25,000 issued and outstanding. The shares of East Ltd. have no par value and there are 1,000 outstanding.

## Income Statements For the 11 months ended December 1, 1984

	West Ltd.	East Ltd.
Sales	\$ 565,000	\$ 462,000
Less: Cost of goods sold	450,000	380,000
Depreciation	35,000	40,000
Other expenses	30,000	18,000_
Net income	\$ 50,000	\$ 24,000

Neither company is certain how to value the investment account on the books of West Ltd. The market value of the shares was \$17 per share before the pooling was announced, but since such a large number was issued, the companies are uncertain about using the market value.

If any consolidated goodwill exists, it is to be amortized over 10 years straight-line.

## REQUIRED:

- (4) (a) Discuss *briefly* how the investment account should be valued. Be precise and explain your reasoning.
- (11) (b) Prepare the consolidated income statement and balance sheet at December 1, 1984. Show all work in an orderly manner to obtain part marks.
- 21 Q.3
  - (5½) (a) At the beginning of 1984, in the General Fund, the Estimated Revenues Account had a balance of \$1,234,000 and the Appropriations Account had a balance of \$1,189,000. At the end of 1984, the Revenues Account had a balance of \$1,207,000 and the Expenditures Account had a balance of \$974,000. The Encumbrances Account had a balance of \$251,000.

## REQUIRED:

Prepare all the appropriate journal entries for the 1984 year-end to record the above data.

(4½) (b) A building is recorded in the General Fixed Asset Group of Accounts at the cost of \$4,500,000 as being provided from the General Fund. The asset is sold for \$345,000, after 25 years of use. No depreciation has been taken during the period of ownership.

## REQUIRED:

Prepare all the relevant journal entries for the above data. Be sure to identify which fund you are using, clearly indicating the debits and the credits.

(7) (c) During the year 1984, the fiscal agent for the City of Winnieville acquired \$500,000 of the par value bonds of the city on the bond market for \$512,000. The redemption price was 107 and the accrued interest was \$25,000, which is 10% per year for the 6 months of accrual. These bonds were cancelled through the Debt Service Fund, but had been recorded in the Long-Term Debt Group of Accounts at par.

## REQUIRED:

Prepare all the relevant journal entries for the above data. Be sure to identify which fund you are using, clearly indicating the debits and the credits.

(4) (d) In most not-for-profit organizations, the emphasis is on matching revenue and expenditure; however, some not-for-profit organizations emphasize the matching of revenue and expenses.

## REQUIRED:

Why would this difference occur?

- Q.4 (a) Rap Ltd. had a Net Loss before Income Tax (NLBIT) of \$2,400,000 on their income statement for the year ended December 31, 1984. The only differences from NLBIT to the tax loss were:
  - 1) Depreciation expense was \$310,000 and CCA was \$0;
  - 2) Various accounting revenues of \$60,000 were non-taxable for tax purposes.

The tax rate for 1984 is 40% and the Deferred Income Tax Account was a *credit* balance of \$363,000 at January 1, 1984, representing a weighted-average tax rate of 40%. Only \$300,000 of the tax loss may be carried back to prior years, when the tax rate was 40%. The loss carry-forward period is seven years and depreciation is expected to remain constant for that time period.

## **REQUIRED:**

- (7) i) Assuming no virtual certainty exists, prepare the tax related journal entries for 1984.
- (5) ii) If the depreciation had been \$31,000, how would the journal entries prepared above change?
- (5) (b) In 1985, Rap Ltd. had a taxable income of \$900,000 and there were no permanent differences. The depreciation and CCA for 1985 remained the same as in (a)(1). The tax rate was still 40%.

## REQUIRED:

Based on the entries for 1984 prepared in part (a)(i), prepare all tax related journal entries for 1985.

Q.5 Quip Ltd. has foreign subsidiaries which are integrated and Quip should be using the temporal method of translating the financial statements of the subsidiaries into Canadian dollars. They have come to you for assistance in solving each of the following independent transactions.

Continued...

(5) (a) The deferred income tax account in foreign currency has three entries in it covering the past three years:

## **Exchange Rate**

December 31, 1982 credit	400,000	\$1 = 145  pesos
December 31, 1983 credit	300,000	\$1 = 130  pesos
December 31, 1984 credit	600,000	\$1 = 120  pesos

The entry for 1985 is a debit of 250,000 pesos and the company is uncertain what exchange rate to use. The spot rate at the end of 1985 is \$1 = 100 pesos.

## **REQUIRED:**

Calculate the exchange rate that would apply to the debit entry at the end of 1985. Do *not* do the conversion.

(6) (b) The opening inventory for 1985 was 3,000,000 pesos with an exchange rate of \$1 = 170 pesos. There were four major purchases during the year:

## **Exchange Rate**

Purchase	#1	4,000,000	\$1	=	117	pesos
Purchase	#2	3,500,000	\$1	==	110	pesos
Purchase	#3	3,000,000	\$1	=	106	pesos
Purchase	#4	2,000,000	\$1	=	102	pesos

The closing inventory was 5,500,000 pesos and the spot rate at the end of 1985 was 1 = 100 pesos. The company used LIFO method for inventory valuation.

## REQUIRED:

Calculate the Canadian dollar amount of the closing inventory and the Canadian dollar amount of the cost of goods sold.

(4) (c) The subsidiary had 100,000,000 pesos of bonds payable outstanding at the end of 1985. The interest rate was 14% per year and the bonds had been issued at the beginning of the year when the exchange rate was \$1 = 120 pesos. At the end of the year the exchange rate was \$1 = 100 pesos. The bonds have a 10 year life and will be redeemed at a 5% premium. Interest is paid evenly throughout the year.

### REQUIRED:

Calculate the Canadian dollar amount of the bonds payable at the end of 1985 and the amount of interest expense in Canadian dollars. Do *not* calculate any exchange gains or losses on the bonds.

(3) (d) A subsidiary in Japan had closing inventory of 15,000,000 yen at cost with an exchange rate of \$1 = 990 yen, but its market value was 12,500,000 yen. The spot rate at the end of the year was \$1 = 800 yen.

## REOUIRED:

Calculate the Canadian dollar amount of the closing inventory as it would be presented on the financial statements.

Rap Ltd. has decided to present supplementary information to their financial statements in accordance with CICA Handbook, Section 4510 and they have reviewed the options of Income Statement presentation and decided that Example C of Appendix B is the one that they wish to use. (Example C is the "Statement of income attributable to common shareholders on a current cost basis under a financial concept of capital".) They have come to you for assistance in the preparation of the statement. You have ascertained the following information.

# (1) Rap Ltd. Income Statement (Historical Cost Basis) For the year ended December 31, 1984

Sales	\$ 4	450,000
Less: Cost of goods sold		287,000
Depreciation		46,000
Selling, general and administrative expenses		38,000
Amortization of deferred charges		12,000
Interest		9,000
Net income before income taxes	\$	58,000
Income taxes — current		18,000
<ul><li>deferred</li></ul>		5,000
Net income	\$	35,000

## (2) The net monetary liabilities were:

December 31, 1983 \$345,000 December 31, 1984 \$382,000

## (3) The shareholders' equities were:

## **December 31, 1983**

Preferred shares, \$10 dividend, cumulative, non-participating, non-redeemable, non-convertible, 30,000 issued and outstanding \$3,000,000

Common shares, no par, fully participating, 400,000 issued and outstanding \$890,000

Contributed surplus on issue of preferred shares \$150,000

Retained earnings \$4,500,000

\$8,540,000

## December 31, 1984

No change from 1983 other than the addition of net income to the retained earnings.

- (4) The inventory on the December 31, 1984 balance sheet was shown at a historical cost of \$567,000 and the current cost amount was \$692,000. The current cost of goods sold was \$312,000. The opening inventory had a historical cost of \$324,000 and a current cost of \$450,000. Purchases at historical cost and current cost were \$530,000.
- (5) The property, plant and equipment was shown at historical cost of \$2,567,000 at December 31, 1984 and was 35% depreciated. There were no additions or disposals during the year. The gross (before depreciation) current cost amount at December 31, 1983 was \$3,468,000 and the gross current cost amount at December 31, 1984 was \$3,753,000. Depreciation is 5% per year.
- (6) The general price level indexes were:

December 31, 1983 120 Average for the year 130 December 31, 1984 140

(7) The gain in general purchasing power from having net monetary liabilities was \$53,000 for 1984.

## **REQUIRED:**

Prepare an Income Statement per *Handbook* Section 4510, Appendix B, Example C. Do *not* prepare the financing adjustment. Show all work in an orderly manner to obtain part marks.

### NOTE:

Two marks will be deducted if you choose to use Example A or B, instead of C. Remember that the supplementary information is required for all Examples.

100

**END OF EXAMINATION** 

## ADVANCED ACCOUNTING 521 EXAMINATION March, 1985 EXAMINER'S COMMENTS

### **General**

The overall pass rate was normal in terms of a supplemental. On every question, at least some students obtained full marks, i.e., there were no "unobtainable" marks. Some regional disparities were apparent in the results.

A number of students appear to regard the CICA <u>Handbook</u> as irrelevant (or unnecessary to pass the course). This perception is incorrect. The preparation of financial statements in Canada is determined by the content of the <u>Handbook</u>: at the level of advanced financial accounting, most procedures and <u>techniques</u> are directly based on <u>Handbook</u> recommendations. The various sections of the <u>Handbook</u> which are referred to in lesson notes are level 1 material. It should be clearly understood that a thorough knowledge of these sections is required to satisfy the course objectives.

### Specific

- Q.1 This question was designed to move the student to think about how the equity method relates to the shareholders' equity of the controlled company and then to test knowledge of the Handbook regarding subsidiary treasury stock transactions. Generally the performance on the first part was good, but numerous students omitted the goodwill. In the second part about 35% of students concluded that a journal entry was necessary.
- Q.2 This question was based closely on the lesson notes and was generally well done except for two aspects. First, about 40% of students did not remember that it is irrelevant how an investment account is valued when the situation is a pooling. (This was the subject of an example in the lesson notes.) Second, the voting shares issued were recorded at a par of \$10 or \$250,000 and when added to the existing shares for West caused the Consolidated Common Shares to be \$500,000 (since the \$25,000 of East are eliminated against the investment account). A few students put the investment account on the Consolidated Balance Sheet.
- Q.3 (a) The majority of the students did not respond to the required part of the question which stated, "journal entries for the 1984 year-end", and wasted time preparing the journal entries for the entire year. Also, most students omitted the \$251,000 entry.
  - (b) Again failure to respond directly to the question caused wasted effort. The question stated, "a building is recorded", yet students made the entries to record the asset.

- (c) Students prepared the entries to record the issue of the bonds even though the question stated that the bonds "had been recorded". Generally this question gave students some difficulty, even though it was very similar to an example in the notes.
- (d) The most common error was to concentrate on revenue and expense matching and not discuss the revenue and expenditure aspect.
- Q.4 Those students who approached the question with an orderly set of calculations did well on this question.
  - (a) i) The most common error was to forget to choose the least of (i) or (iii) to recognize the loss carry forward and thus recognize the entire \$740,000.
    - ii) If the student was using an orderly approach, this part was easy. But some students used the rule in part (a) (i) and forgot (a) (ii).
  - (b) Students neglected the Temporary Timing Difference (\$124,000) and failed to credit Extraordinary Items for the portion which they had not recognized in (a) (i).
- Q.5 This question was based directly on the CICA Handbook Section 1650. It may be noted that 85% of the 325 largest companies have material foreign currency aspects on their financial statements.
  - (a) The DIT account is non-monetary and thus it uses the weighted average rate, just as it uses a weighted average tax rate for drawdowns. Generally this part was poorly answered.
  - (b) The closing inventory and cost of goods sold will change quite drastically with the cost flow assumption under the temporal method.
  - (c) The bonds are a liability, so they will be translated at the year-end spot rate (non-historical) and the interest expense is translated at an average rate for the year, (not on historical rate or spot rate).
  - (d) Not well answered.
- Q.6 In prior examinations, questions had been included on the calculation of the various numbers required in Section 4510. This time students were asked to demonstrate if they could present those numbers in some kind of coherent form. Of the total of 19 marks, 11 were allocated to the same calculation as had been done on previous exams, for example, current cost depreciation, and cost of goods sold and increase in current cost, net of inflation of inventory and fixed assets.

However, a number of students were unable to respond coherently to the most basic aspects of the topic. As the lesson notes clearly state, Section 4510 is the most controversial aspect in financial accounting today, and more than 30% of those companies qualifying under 4510 are preparing this supplementary information. It is essential that students of Advanced Financial Accounting are well versed as to the Section 4510 recommendations on presenting the supplementary information.

## ADVANCED ACCOUNTING 521 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

10 Q.1 \$487,500 - (\$68,000 + \$76,000) = \$343,500.

 $\$355,000 - (.8 \times \$343,500) = 80,200/20 = \$4,010.$ 

- (5) Thus the balance, before the treasury stock transaction, of the account was \$355,000 plus  $.8 \times (\$68,000 + 76,000) = \$115,200$ , less  $2 \times 4,010 = \$8,020$  or \$462,180.
- (5) The treasury stock transaction increased Parent's percentage from 80% to 88.89%, but the underlying value of the subsidiary decreased by the purchase price of the treasury stock, i.e., \$32,000. Thus Parent owns 88.89% of \$487,500 32,000 = \$455,500 × .8889 = \$404,894. Parent used to own 80% of 487,500 (390,000); it now owns .8889 of 455,500 (404,894): i.e., an increase of 14,894. In the CICA Handbook this transaction is treated as an additional purchase and the account does not change; the goodwill simply decreases by 14,894. Thus, there is no journal entry.

## Alternative solution:

Re-purchase of a book value of 400/4,000 (487,500)	\$ 48,750
Price paid	32,000
Decrease for all shareholders	\$ 16,750

Decrease for Parent 3,200/3,600 or .8889 of 16,750 = 14,894.

- 15 Q.2 (a) It does not matter how the investment account will be valued under pooling for two reasons:
  - (2) i) the account will be eliminated under consolidation, and
  - (2) ii) the method of valuation will not make any difference to the consolidated statements since there is no revaluation of assets or goodwill.

If for some reason the consolidated statements were not prepared, the investment account would have to be shown under the equity method and every effort should be made to value the account at the fair market value of the shares, taking into account that they were issued in a large block, although that may be essentially impossible to do.

(b) Assuming that the account was valued at market, the issue entry would be:

DR	Investment in East Ltd.	\$425,000	
CR	Common Shares		\$250,000
CR	Contributed Surplus		175,000

The eliminating entry would then be:

DR	Common Shares	\$ 25,000	
DR	Contributed Surplus	175,000	
DR	Retained Earnings	225,000	
CR	Investment in East Ltd.		\$425,000

Thus the balance sheet would be:

# West Ltd. Balance Sheet As at December 1, 1984

(7)	Current Assets (130,000 + 190,000) Fixed Assets, net (878,000 + 686,000) Goodwill (54,000 + 88,000)	\$ 320,000 1,564,000 142,000	
		\$2,026,000	
	Current Liabilities (80,000 + 85,000) Long-term Liabilities (300,000 + 400,000) Common Shares (250,000 + 250,000 + 25,000 - 25,000) Retained Earnings (432,000 + 454,000 - 225,000)	\$ 165,000 700,000 500,000 661,000	
		\$2,026,000	

# West Ltd. Income Statement For the 11 months ended December 1, 1984

(4)	Sales	\$1,027,000
	Less: Cost of Goods Sold	830,000
	Depreciation	75,000
	Other Expenses	48,000
	Net Income	\$ 74,000

The two statements are simply added together.

21	Q.3		DR	CR
	$(1\frac{1}{2})$ (a)	Revenues	\$1,207,000	
		Estimated Revenues		\$1,234,000
		Fund Balance	27,000	, , , , , , , , , , , , , , , , , , , ,
	(31/2)	Appropriations	\$1,189,000	
		Expenditures		974,000
		Encumbrances		251,000
		Fund Balance	36,000	251,000
	(1/2)	Reserve for Encumbrances	\$ 251,000	
		Reserve for Encumbrances 1984		\$ 251,000
	(2½) (b)	General Fund		
		Cash	\$ 345,000	
		Revenues		\$ 345,000
	(2)	General Fixed Asset Group of Accounts		
		Source of Funds - General Fund	\$4,500,000	
		Building	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\$4,500,000

(41/2) (c) Debt Services Fund

Matured Bonds Payable \$ 500,000 Matured Interest Payable \$ 25,000

Investments on Deposit with Fiscal Agent \$ 512,000 Revenues-Redemption Difference \$ 13,000

The student might prepare an entry to convert cash on deposit with the fiscal agent, to investments on deposit with the fiscal agent, before making the above entry. Since the bonds will be on the books at the par, the par should be used. If the bonds were on the books at the par plus redemption premium, the amount debited would be the par plus redemption premium.

(2½) Long-term Debt Group of Accounts
Bonds Payable \$ 500,000
Amount Available to Redeem Bonds \$ 500,000

- (4) (d) Some not-for-profit organizations must keep track of expenses since they are not able to pass on their costs through taxes and must bill customers or other agencies for the cost incurred in rendering a service. An example would be a hospital, or an agency fund of a city. Most not-for-profit organizations are able to pass on to the taxpayers their incurred costs and thus would use the expenditure basis.
- (2,400,000)17 Q.4 (a) i) + 310,000 0 60,000 300,000 1.850,000 (2.150.000) $\times$  .4  $\times$  .4  $\times$  .4 740,000 120,000 860,000
  - (2) Tax Refund Receivable \$ 120,000 Income Tax Recovery \$ 120,000

Least of i) 740,000ii) 239,000 = (363,000 - 124,000)iii)  $7 (310,000 - 0) \times .4 = 868,000$ 

ii) Loss Carry Back - no change
 (2) Temporary Timing Difference = 31,000 × .4 = 12,400
 (3) Loss Carry Forward

Least of i) 828,400 = .4 (2,371,000 - 300,000)ii) 350,600 = (363,000 - 12,400)iii)  $86,800 = 7 (31,000 - 0) \times .4$ 

thus the Loss Carry Forward journal entry would be prepared for  $\$86,\!800$  only.

(b) 1985

(2)	DR	Tax Expense	\$ 236,000	
	DR	Deferred Income Tax	124,000	
(3)	CR	Tax Payable		\$ 360,000
	DR	Tax Payable	\$ 360,000	
	CR	Deferred Income Tax		\$ 239,000
	CR	Extraordinary Item		121,000

18 Q.5

(5) (a) Since the deferred income tax account is non-monetary, the exchange rate must be an average.

$$\frac{400,000 + 300,000 + 600,000}{2,759 + 2,308 + 5,000} = \frac{1,300,000}{10,067} = 129.135$$

The exchange rate would be 129.135

- (2) (c) 100,000,000/100 = \$1,000,000 bonds payable at December 31, 1985.
- (2) 14,000,000 interest in pesos at average for the year, which can be assumed to be 110: 14,000,000/110 = 127,272.
- (3) (d) 15,000,000/990 = \$15,152 12,500,000/800 = 15,625, thus market is lower in Japan, but after translation the cost is lower, so the cost would be used on the translated financial statements.

19 Q.6 (2)

# Statement of Income Attributable to Common Shareholders On ■ Current Cost Basis under ■ Financial Concept of Capital and Other Supplementary Information For the year ended December 31, 1984

(½)         \$ 450,000         Sales         \$ 450,000           (1)         287,000         Cost of goods sold         312,000           (1½)         46,000         Depreciation         180,525           (½)         38,000         Selling, general and administrative         38,000           (½)         12,000         Amortization of deferred charges         12,000           9,000         Interest         9,000    Net income (loss) on a current cost basis  (101,525)  (½)  18,000  Income taxes - current - deferred - 5,000  (½)  5,000  Income (loss) on a current cost basis (124,525) (1)  300,000  Dividends on non-participating (300,000)	
(1) 287,000 Cost of goods sold 312,000 (1½) 46,000 Depreciation 180,525 (½) 38,000 Selling, general and administrative 38,000 (½) 12,000 Amortization of deferred charges 12,000 9,000 Interest 9,000 Selling (101,525) (½) 18,000 Income taxes (101,525) (½) 18,000 Income taxes - current 18,000 (½) 5,000 Income (loss) on a current cost basis (124,525) (120,000) Selling (124,525) (120,000) Income (loss) on a current cost basis (124,525) (120,000) (120,000)	
(1/2)         46,000         Depreciation         180,525           (1/2)         38,000         Selling, general and administrative         38,000           (1/2)         12,000         Amortization of deferred charges         12,000           9,000         Interest         9,000    Net income (loss) on a current cost basis  (101,525)  (1/2)  18,000  Income taxes - current - deferred - 5,000  (1)  35,000  Income (loss) on a current cost basis (124,525)  (120,000)  (1)  (1) (1) (1) (1) (1) (1) (1) (1)	
(½)         38,000         Selling, general and administrative         38,000           (½)         12,000         Amortization of deferred charges         12,000           9,000         Interest         9,000    Net income (loss) on a current cost basis  58,000 before income taxes (101,525) 18,000 Income taxes - current 18,000 - deferred 5,000  (1)           35,000         Income (loss) on a current cost basis         (124,525)           (1)         35,000         Income (loss) on a current cost basis         (124,525)	
9,000 Interest 9,000  Net income (loss) on a current cost basis  58,000 before income taxes (101,525)  (1/2) 18,000 Income taxes - current 18,000  (1/2) 5,000 - deferred 5,000  (1) 35,000 Income (loss) on a current cost basis (124,525)	
Net income (loss) on a current cost basis    58,000	
58,000   before income taxes   (101,525)	
(½)     18,000     Income taxes - current     18,000       (½)     5,000     - deferred     5,000    (1) 35,000 Income (loss) on a current cost basis (124,525)	
(½) 5,000 - deferred 5,000 (1) 35,000 Income (loss) on a current cost basis (124,525)	
(1) 35,000 Income (loss) on a current cost basis (124,525)	
(200,000)	
(1) 300,000 Dividends on non-participating (300,000)	
(1)	
preferred shares Increase in the current cost amounts	
of inventory, property, plant and	
(6) equipment held during the year $216,375$ (N	Note 1)
Income (loss) attributable to common	
shareholders on a current cost basis	
\$ (265,000) in nominal dollars \$ (208,150)	
General purchasing power adjustments Increase in current cost amounts of inventory, property, plant and	
equipment attributable to effects of general inflation 463,476	(Note 2)
Gain in general purchasing power from  having net monetary liabilities (53,000)	
$\begin{array}{cccc} & & & & & & & & & & & & & & & & & $	
Net loss attributable to common share- \$ 265,000 holders on a current cost basis \$ 618,626	

## Other Supplementary Information

Fixed Assets	Gross	Accumulated Depreciation	Net	
Opening	\$3,468,000	\$1,040,400	\$2,427,600	$\times 130 = \$2,629,900$
Depreciation		180,525 <sup>(3)</sup>		
Plug	285,000	92,625	192,375	$ \begin{array}{c}                                     $
	\$3,753,000	\$1,313,550	\$2,439,450	
			Inflation	Factor \$376,547 <sup>(2)</sup>
Inventory				
Opening		\$ 450,000	× 130 120	= \$ 487,500
+ Purchases		530,000	130 130	530,000
Cost of goods current cost		312,000	$\frac{130}{130}$	312,000
Plug		24,000 <sup>(1)</sup>	$\frac{130}{130}$	<u>24,000</u> 729,500
Closing		\$ 692,000	130 140	(642,571)
		Inflatio	on Factor	\$ 86,929(2)

## NOTES:

## (1) Increase in current cost etc.

Fixed Assets	\$ 192,375
Inventory	24,000
	\$ 216,375

## (2) General purchasing power adjustment etc.

Fixed Assets	\$ 376,547
Inventory	86,929
	\$ 463 476

$$(3) \quad \frac{(.05)}{2} \quad \frac{(3,468,000+3,753,000)}{2} = \$180,525$$

## ADVANCED ACCOUNTING 521 EXAMINATION June, 1985

Marks Time: 3 Hours

Q.1 North Ltd. acquired 80% of the voting shares of South Ltd. In exchange, North Ltd. issued 50,000 non-voting preferred shares, with a market value of \$11 per share and a par value of \$10 per share to the common shareholders of South Ltd. Both companies have a December 31 year-end, and this transaction occurred on December 1, 1984. The outstanding preferred shares of South Ltd. did not change hands.

Following are the balance sheets of the two companies at December 1, 1984 before the transactions took place:

Balance Sheets As at December 1, 1984	North L	td.	South Ltd.	
2000	Book Value	Fair Market Value	Book Value	Fair Market Value
Current assets	\$ 250,000	\$300,000	\$210,000	\$260,000
Fixed assets, net	850,000	720,000	780,000	860,000
Goodwill	110,000			_
Total	\$1,210,000		\$990,000	
Current liabilities	\$ 200,000	\$190,000	\$165,000	\$185,000
Long-term liabilities	400,000	420,000	200,000	230,000
Preferred shares	_	_	150,000	_
Contributed surplus –				
(Issue preferred shares)	_	_	120,000	_
Common shares*	300,000	_	100,000	-
Retained earnings	310,000	_	255,000	
Total -	\$1,210,000		\$990,000	

<sup>\*</sup>Both North Ltd. and South Ltd. have "no par value" shares.

#### **Income Statements** For the 11 months ended December 1, 1984 North Ltd. South Ltd. \$656,000 \$567,000 Sales 357,000 395,000 Less: Cost of goods sold 65,000 62,000 Depreciation 89,000 70,000 Other expenses \$ 56,000 \$129,000 Net income

Neither company is certain how to value the investment account on the books of North Ltd. Since such a large number of shares is involved, the market value is uncertain.

If any consolidated goodwill exists, it is to be amortized over 10 years, straight-line.

## **REQUIRED:**

- (2) (a) Discuss how the investment in subsidiary should be valued on the books of North Ltd. Be precise and present reasons for your answer.
- (16) (b) Prepare the consolidated balance sheet and income statement, in good form, for the date of acquisition, December 1, 1984. Show all work in an orderly manner to obtain part marks.

- 25 Q.2
  - (4) (a) In most not-for-profit organizations, budgeting is considerably more important than in profit-oriented organizations. Why? What is the implication of this increased importance in terms of accounting?
  - (4) (b) Define and explain the terms ''operation-accountability'' and ''dollar-accountability''.
  - (17) (c) The City of Poohville is building a new bridge which will cost \$28,000,000. It was approved by the people of the city in a referendum. To conduct basic engineering studies, \$79,000 was borrowed (\$50,000 from the General Fund and \$29,000 from the bank). The provincial government will pay \$9,000,000 toward the cost of the bridge, and the federal government has offered a matching grant of \$9,000,000. The remainder of the money will be borrowed by the city through bonds, with repayment in 10 years at 12% interest per year. The bonds are issued at a premium of \$878,000, and the city council has decided that the premium will be put toward the construction.

Before the fiscal year-end, contracts were entered into for the concrete foundations, and the cost of these was \$4,672,000. The city engineers working on the project were paid \$69,000. An amount of \$800,000 was received from each of the provincial and federal governments. The bank loan and its accrued interest of \$3,500 was repaid. The proceeds of the bond issue have been invested in short-term investments which have no risk, and the income on these was \$934,000 for the year. This money is to be applied to the construction as it is required. (Any excess at the end of construction will be used to build related items such as lighting which is not covered by the contract.) The city uses a Capital Project Fund for its large construction.

### REQUIRED:

Prepare all the journal entries relevant to the above information. *Do not* prepare the closing entries. Explanations are not necessary. Calculations must be shown in an orderly manner to obtain part marks. Use the following format *in your examination booklet:* 

DR/CR Fund Account Titles Dollar Amounts

Q.3 On January 1, 1984, Rap Ltd. had a debit balance of \$432,000 in the deferred income tax account, reflecting a weighted average rate of .4451. This balance was related entirely to differences between depreciation and capital cost allowances. During 1984, there was a tax loss of \$300,000, and depreciation was \$95,000 with a capital cost allowance of \$0. There were no other differences between taxable and accounting income. There was no virtual certainty that the loss carry-forward would be used up in the loss carry-forward time period, and there was no reasonable assurance that the temporary timing difference would reverse in the future. Because of losses in prior years, no part of the current loss could be carried back.

## REQUIRED:

Prepare the tax related journal entry (entries) for 1984. Also, explain the rationale supporting your entries or state the reason that no entries were prepared.

8

15 Q.4 Following are transactions of Import Ltd., a company engaged in importing products into Canada.

## September 1, 1984

Incurred a liability for 500,000 pesos, due February 1, 1985, for purchasing inventory.

## October 1, 1984

Incurred a liability for 3,000,000 yen, due November 1, 1985, for purchasing inventory.

## November 1, 1984

Incurred a liability for 11,000 Russian rubles, due March 1, 1986, for purchasing inventory.

## **Exchange Rates:**

## September 1, 1984

\$1 = 150 pesos Spot rate

\$1 = 120 pesos Forward exchange contract rate

## October 1, 1984

\$1 = 800 yen Spot rate

\$1 = 950 yen Forward exchange contract rate

## November 1, 1984

\$1 = 1.80 rubles Spot rate

1 = 1.60 rubles Forward exchange contract rate

## December 31, 1984

1 = 100 pesos

1 = 1,000 yen

\$1 = 1.50 rubles

## **REQUIRED:**

Parts (a) and (b), below, are based on different policies regarding hedging. Answer each part as an independent problem.

- (10½) (a) Import Ltd. did not hedge or cover its exchange risk position. Prepare the journal entries for 1984. The company has a December 31 year-end.
- (4½) (b) At the time of each transaction, Import Ltd. paid \$100 for a forward exchange contract, which was a perfect and complete hedge against the foreign exchange risk. Prepare the journal entries for 1984. The company has a December 31 year-end.

## 0.5 Jay Ltd. shows the following on their Balance Sheet:

	December 31 1983	December 31 1984
Property, plant and equipment Less: Accumulated depreciation	\$430,000 (86,000)	\$450,000 (89,000)
Net book value	\$344,000	\$361,000

The depreciation expense for the year 1984 was \$22,500, which is 5% per year, straight-line with no salvage value. During the year, \$85,000 of assets were acquired (evenly throughout the year), and assets costing \$65,000 (30% depreciated) were sold for proceeds of \$40,000. The \$5,500 loss was included in income as an unusual item. No depreciation was taken on the assets sold, and a full year's depreciation was taken on the assets acquired. The company is considering presenting supplementary information to their financial statements per the *Handbook* Section 4510.

You have determined that the gross replacement cost (before depreciation) was \$910,000 (20% depreciated) at December 31, 1983 and \$1,040,000 (25% depreciated) at December 31, 1984. You have also found that the assets purchased during the year had a current cost of \$92,000 at the end of the year, and the assets sold had a current cost of \$50,000 at the beginning of the year.

## The general price level indexes were:

December 31, 1983 142 Average for 1984 151 December 31, 1984 160

## **REQUIRED:**

- (10) (a) Using the format demonstrated in Appendix B to *Handbook* Section 4510, prepare a partial Income Statement which shows those items presented above. Any of the three examples of current cost income statements may be used.
- (10) (b) Appendix B to Handbook Section 4510 requires the presentation of supplementary information regarding property, plant and equipment, in addition to the Income Statement. Present the supplementary information for the above data, using a format from Appendix B. (Example A or B would be the most suitable.)
- (2) (c) Calculate the "Backlog Depreciation Adjustment".

22

Q.6 During 1984, Parent Ltd. kept its "Investment in Subsidiary" account on a cost basis, since the account would be eliminated on consolidation. Parent Ltd. owned 90% of Sub Ltd.; goodwill of \$567,000 was established at the date of acquisition and it is being amortized over 30 years, straight-line. The purchase price of the shares of Sub Ltd. was \$4,680,000.

During the year 1984, Sub Ltd. had the following transactions with Parent Ltd.:

- 1) Paid dividends of \$90,000 to Parent Ltd.
- 2) Sold inventory to Parent Ltd. for \$678,000 with a profit margin of 25% on retail.
- 3) Sold a depreciable fixed asset to Parent Ltd. for \$852,000. It had cost the subsidiary \$500,000 and was 30% depreciated at the time of sale. In the year of sale, the acquiring company will take a full year's depreciation, and the selling company will take none. The acquiring company will depreciate the asset over the residual life.

During the year 1984, Parent Ltd. had the following transactions with Sub Ltd.:

- 1) Sold inventory to Sub Ltd. for \$951,000 with a profit margin of 30% on retail.
- 2) Sold to Sub Ltd. for \$600,000, a non-depreciable asset which had originally cost Parent Ltd. \$750,000.

## Other information:

- 1) Sub Ltd. had 20% of its intercompany inventory remaining at the fiscal year-end.
- Parent Ltd. had 40% of its intercompany inventory remaining at the fiscal yearend.
- 3) Parent Ltd.'s net income for the year was \$1,479,000.
- 4) Sub Ltd.'s net income for the year was \$975,000.
- 5) All depreciable assets are depreciated over 10 years, straight-line.

## REOUIRED:

Based on the information given, calculate the Consolidated Net Income. It is not necessary to prepare an Income Statement, but your workings should be set out in an orderly manner so that part marks may be assigned.

END OF EXAMINATION

100

## ADVANCED ACCOUNTING 521 EXAMINATION June, 1985 EXAMINER'S COMMENTS

### General

Students who had trouble with this examination were basically not familiar enough with the relevant sections of the CICA Handbook. One cannot pass Accounting 521 without a thorough knowledge of the Handbook and its applications. Some students are not answering the question that was asked, for example, Q.1(a) asked for valuation, not accounting procedure and instead of \$550,000, students answered "equity".

## Specific

- Q.1 This question was a problem for students. The valuation had to be the \$550,000 because if the fair market value of the net assets is used, there is no goodwill. The exchange of shares involved non-voting shares, so it could not be a pooling situation. Students did not include the income-to-date in their calculations. Most students stated incorrectly that there was no consolidated income statement.
- Q.2 (a) About a third of the students did not discuss both sides of the situation i.e., the profit and non-profit.
  - (c) With the exception of the third and fourth entries, students found the entries to be quite straight-forward.
- Q.3 Many students missed the \$432,000 journal entry.
- Q.4 Quite a few students do not understand the difference between whether the exchange gains or losses should be deferred or amortized.
- Q.5 The change in performance between the March examination and the June examination in this area was very surprising. Quite a number of students did the question first and about 20% of the students received 20 marks or more on the question, which indicates that students had put some real effort into reading the <u>ClCA Handbook</u>. Unfortunately, a number of students felt that simply preparing the table was sufficient. They did not label any of the numbers or appear to understand the meaning of what they had calculated.
- Q.6 The major problem here was the inability to calculate the depreciation adjustment of \$71,714.

## **ADVANCED ACCOUNTING 521 EXAMINATION** June, 1985

## SUGGESTED SOLUTIONS

Marks	Time: 3 Hours
IVIAI NO	Time: 5 Hours

18 Q.1

(2)(a) In this case the investment must be valued at market because the asset revaluations and the consolidated goodwill depend upon the fair value of the consideration given.

\$550,000

(b) Thus the entry to record the investment will be: (16)

DR Investment in South Ltd.

CR CR	Preferred Shares Contributed Surplus	,,,,,,,,,,	\$500,000 50,000
Curr Fixe Curr Long	Excess  ent Assets8 × (260,000 -210,000)  d Assets8 × (860,000 -780,000)  ent Liabilities +.8 × (185,000 -165,000)  g-term Liabilities +.8 × (230,000 -200,000)  Goodwill  s the eliminating entry would be:	\$550,000 380,000 \$170,000 - 40,000 - 64,000 + 16,000 + 24,000 \$106,000	
DR DR DR DR DR DR CR CR	Common Shares — South Ltd. Retained Earnings — South Ltd. Contributed Surplus Current Assets Fixed Assets Goodwill Current Liabilities Long-term Liabilities Minority Interest*	\$100,000 255,000 120,000 40,000 64,000 106,000	\$ 16,000 24,000 95,000

 $<sup>*95,000 = .2 \</sup>times 475,000$ 

Investment in South Ltd.

CR

NOTE: The journal entries are not required in the student's solution, but are provided for information. However, the student is required to show all work in an orderly manner to obtain part marks.

Continued...

550,000

## North Ltd. Consolidated Balance Sheet As at December 1, 1984

(1) (1) (3)	Current Assets (250,000 + 210,000 + 40,000) Fixed Assets, net (850,000 + 780,000 + 64,000) Goodwill (110,000 + 106,000) Total	1,	500,000 694,000 216,000 410,000
(1) (1) (1) (1½) (1½) (1) (1) (1)	Current Liabilities (200,000 + 165,000 + 16,000) Long-term Liabilities (400,000 + 200,000 + 24,000) Minority Interest — preferred Minority Interest — common Preferred Shares Contributed Surplus Common Shares Retained Earnings Total		381,000 624,000 150,000 95,000 500,000 50,000 310,000 410,000

## North Ltd. Consolidated Income Statement For the 11 months ended December 1, 1984

This would simply be the statement of North Ltd. since the statement of South Ltd. would be eliminated under a purchase.

25 Q.2

(2)

- (a) In not-for-profit organizations, the budget is the basis for the operation. That is, the budget permits the manager to do something, since the manager is taking the responsibility of spending the taxpayer's money. The rule is, if it isn't in the budget you cannot do it. For profit-oriented firms, the budget is a guideline to measure
- (1) performance and it is a highly variable prediction, since revenue cannot be predicted with certainty.
- (2) The implication is that the budget becomes part of the accounting system in not-for-profit organizations, whereas it is simply a criteria to judge performance in profit oriented firm.
- (2) (b) Operation-accountability refers to a measure of performance based on profitability and dollar-accountability refers to a measure of performance where stewardship over resources is the consideration, not profit, that is, full disclosure of actions taken and conformity to the wishes of the taxpayers are required.

## (c) Capital Projects Fund

(1)	DR Projects Authorized CR Fund Balance or Appropriations	\$28,000,000	\$28,000,000
(2)	DR Cash CR Loans Payable — Bank CR Loans Payable — General Fund	79,000	29,000 50,000
(2½)	DR Due from Provincial Government DR Due from Federal Government CR Projects Authorized	9,000,000 9,000,000	18,000,000
(2½)	DR Cash CR Projects Authorized CR Premium on Bonds	10,878,000	10,000,000 878,000
(1)	DR Encumbrances CR Reserve for Encumbrances	4,672,000	4,672,000
(1)	DR Expenditures CR Cash	69,000	69,000
(1)	DR Cash CR Due from Provincial Government CR Due from Federal Government	1,600,000	800,000 800,000
(1)	DR Loan Payable — Bank DR Expenditures CR Cash	29,000 3,500	32,500
(1½)	DR Cash CR Interest on Invested Cash-Revenue	934,000	934,000
	The student may prepare an entry transferring the but it must stay in the Capital Projects Fund.	excess cash to	an investment
(1)	General Fund		
	DR Due from Capital Projects Fund CR Cash	\$ 50,000	\$ 50,000
	Long-Term Debt Group of Accounts		
(2½)	DR Amount to be provided for Repayment of Bonds CR Bonds Payable	\$10,000,000	\$10,000,000

8	Q.3 (4)	DR Extraordinary Item CR Deferred Income Tax	\$432,000	\$432,000
		Since no reasonable assurance exists, this ent	ry is necessary.	
	(2)	No Temporary Timing Difference entry is pre exists.	pared since no reasonable	e assurance
	(2)	No journal entry is prepared for the loss carry-for account is a debit or zero balance.	orward since the Deferred	Income Tax
15	Q.4	(a) September 1, 1984		
	(1½)	DR Inventory CR Accounts Payable 500,000 / 150	\$3,333	\$3,333
		October 1, 1984		
	(1½)	DR Inventory CR Accounts Payable 3,000,000 / 800	\$3,750	\$3,750
		November 1, 1984		
	(1½)	DR Inventory CR Accounts Payable 11,000 / 1.80	\$6,111	\$6,111
		December 31, 1984		
	(1½)	DR Loss CR Accounts Payable 3,333 - (500,000 / 100)	\$1,667	\$1,667
	(1½)	DR Accounts Payable CR Gain	750	750
	(1½)	3,750 - (3,000,000 / 1,000)  DR Deferred Exchange Loss  CR Accounts Payable  6,111 - (11,000 / 1.50)	1,222	1,222
	(1½)	1,222 / 16 = 76 per month DR Loss CR Deferred Exchange Loss 2 × 76 = 152	152	152

## (b) September 1, 1984

(1½)	DR Inventory CR Accounts Payable 500,000 / 120	\$4,167	\$4,167
	October 1, 1984		
(1)	DR Inventory CR Accounts Payable 3,000,000 / 950	\$3,158	\$3,158
	November 1, 1984		
(1)	DR Inventory CR Accounts Payable 11,000 / 1.60	\$6,875	\$6,875
(1)	At each date, this entry would be prepared DR Inventory CR Accounts Payable	\$ 100	\$ 100
	At December 31, 1984, no exchange loss or gain may prepare a journal entry to establish the forw set up and no marks are given for it.	is to be recognize ard contract but	ed. The student no gain is to be

22 Q.5 (2) (a) Form

(6)	Historical Cost \$22,500	Depreciation Expense	Current Cost \$49,450 (Note 1)	
(2)	(5,500)	Loss on Sale of Assets	0	

		(b)					Y-61-4
			Gross Current Cost	Accumulated Depreciation			Inflation Adjustment Current Cost
		Opening Additions Depreciation	\$ 910,000 85,000	\$182,000 —	\$728,000 85,000	× 151/142 =	\$774,141 85,000
		expense Disposals (Note 2)	(57,143)	49,450 (17,143)	(49,450) (40,000)		(49,450) (40,000)
		Plug	102,143	45,693	56,450		56,450 (90,016)
		Balance	\$1,040,000	\$260,000	\$780,000	× 151/160 =	
		1,040,000	0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.000 = 0.0000	=\$49,450		85,000 = 989,6 able Value = 5	
	(4) (4)		urrent cost o	of property, p			450 016
	(2)	Historical C \$361,000 F		nt and equipn		Current Cost 780,000	
		(C) \$43,093.					
12	Q.6			I	ncome 1984		
	$(1\frac{1}{2})$ $(1\frac{1}{2})$ $(2)$ $(1)$	Type 2 adjustm	ent		-502,000 ir	ntercompany in ntercompany fix ntercompany de	ked assets
	<b>\-</b> ,	Minority interes	st 10%	_	<u> </u>		
		Type 3 adjustm Type 4 adjustm			- 57,060 ir	oodwill amortiz	ventory
	(1½)	Tour			+150,000 ir	itercompany no lepreciable fixe	on- ed assets
	(1/2) +	Investment inco Parents Net Inco Intercompa dividends	ome \$1	1,479,000	\$ 503,263		
	(1)	(cost basis)		- 90,000 COME	1,389,000		
				=	71,072,203		

## ADVANCED SYSTEMS 525 EXAMINATION March, 1985

Marks Time: 3 Hours

Q.1 The directors of Aspertame Printing Company of Montreal are reviewing a proposal to acquire Acadia Publishers. Acadia's operations are located in an urban area about 300 miles west of Aspertame's headquarters. Aspertame's success in recent years, according to its management, has been attributed largely to its computerized management information system. Acadia, however, has used a computer only for financial accounting applications such as payroll and inventory records.

In considering the acquisition, Aspertame's board of directors focused on the possibilities of two options for developing a computerized management information system to include Acadia:

(a) a centralized structure, or (b) a distributed structure.

NOTE: Assume that Acadia would be organized as a profit centre.

## REQUIRED:

- (6) (a) Briefly define the terms:
  - i) centralized structure
  - ii) distributed structure.
- (4) (b) Compare the degree of detail likely to be transmitted from a site location to headquarters in:
  - i) a centralized structure
  - ii) a distributed structure.
- (6) (c) Give three reasons why you would prefer a distributed structure over a centralized structure.
- 20 Q.2 The documentation of information systems applications is an important step in the design and implementation of any computer-based system; however it is a phase of systems development that is often neglected. Documentation provides a complete record of information processing applications and, while it can be tedious and time-consuming, the lack of proper documentation can be very costly for an organization.

Continued...

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### REQUIRED:

- (5) (a) Briefly identify and explain the purposes of having proper documentation.
- (9) (b) Briefly discuss the basic type of information that should be included in the documentation of a data processing application.
- (6) (c) What control policies should be established to regulate access to documentation data for the following three groups of company employees?
  - i) Computer operators
  - ii) Internal auditors
  - iii) Systems analysts
- 20 Q.3 Two of the techniques employed for auditing data processing based accounting information systems are the "test decks" and the "parallel simulation" techniques.

## REQUIRED:

Describe each of these two techniques and the advantages/disadvantages associated with them.

### 21 0.4

(9) (a) There are a number of options open to a company needing the use of a computer. One of these options is the in-house option, in which the company takes on the entire job of acquiring hardware, developing or acquiring software, acquiring and training personnel, and providing the necessary facilities and supplies.

## REQUIRED:

There are  $\underline{\text{three}}$  other major options. Name and briefly describe them.

(12) (b) Family Homes Corporation of Calgary, Alberta is a land developer and home builder. It employs 60 employees and has yearly revenues of \$20 million. Currently it uses an option different from the in-house option to process its payroll, accounts payable, and general ledger. However, it is considering a conversion to an in-house computer system. Accordingly, the president of the firm asks the controller to find the computer system that will best serve the firm's needs.

With the assistance of the firm's internal auditor, the controller prepares a request for proposals (RFP), which she mails to approximately 25 suppliers of small computer systems. The RFP consists of the following information:

General background of Family Homes Corporation, especially with respect to current development and building activities.

**Descriptions** of current computerized applications, including system flowcharts, file formats, report contents, and general data such as number of general ledger accounts.

Specifications of data to be provided by each supplier, including the characteristics of the most suitable processor, the number and type and speed of input/output units, the characteristics of secondary storage devices, the programming languages and compilers available for the recommended processor, the most suitable application software packages, the estimated time needed for installation, the floor space requirements, the itemized costs, and the support services available.

## REQUIRED:

- (6) i) Evaluate and criticize the <u>procedures</u> associated with the preparation and distribution of the Request for Proposal.
- (6) ii) Evaluate and criticize the <u>contents</u> of the Request for Proposal.
- 23 Q.5
  - (6) (a) The data base approach and the traditional application approach are two ways of handling the data resources of an organization. Explain why the traditional approach to data management is hampered in responding to such information requests as:

"Which salespeople who have been with the firm less than one year have sold product Q to customers who owe the firm more than \$50,000?"

(6) (b) Explain how you would set up and use an inverted list data structure to answer a query such as:

"How many employees in plant 2 who have five or more years of seniority earn \$18.00 or more per hour?"

Continued...

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(5) (c) Explain how you would set up and use a tree structure to answer a query such as:

"Who were the top five salespeople in Sales Territory 10 in terms of gross sales last month?"

(6) (d) If you had to have <u>one</u> sequentially organized file, explain what the data items in your record would be and how you would search the file to answer the query posed in part (c).

100

END OF EXAMINATION

E525M85

# AUVANCED SYSTEMS 525 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### **General**

The overall quality of examination answers in this course continues to improve. Even more students could improve their marks by paying attention to examination technique.

#### Specific

- Q.1 (a) Generally very well done. There was some confusion between decentralized and distributed.
  - (b) This question was extremely well done, most students received full marks.
  - (c) This question was fairly well done. A common problem was a concentration of many students on hardware savings or benefits (e.g., lower transmission costs) that would accrue, rather than the managerial benefits of distributing the MIS function.
- Q.2 (a) The benefits of documentation were fairly well covered, although some answers were a little sparse, missing benefits such as training and communication.
  - (b) There were difficulties in outlining types of documentation within a general framework. Virtually all students gave a long list of features, concentrating on programming documentation.
  - (c) This question was done well by many students but a fair number did not address the issue in the question. They spoke of the need to control who accesses the system, enters data and changes programs rather than the type of documentation which should be available.
- Q.3 (a) Test Decks most people knew what they were and how they were to be used. Lists of advantages and disadvantages were not always complete discussion was weak.
  - (b) Parallel Simulation some students confused this with a method of parallel systems implementation. Others did not realize that the process involved the creation of a duplicate system. Some felt it was running the company's system on another computer or using sampled "live" data in the firm's systems. Advantages and disadvantages were confused.

Continued...

- Q.4 (a) Many students misinterpreted the question and replied with:
  - software development options (canned, consultant, hybrid);
  - acquisition options (rent, lease, or buy);
  - no clear distinctions between the three correct options.
  - (b) i) Points most frequently (and correctly) made were:
    - no analysis;
    - no user involvement
    - too many suppliers; contact with suppliers before sending RFP;
    - only small computer suppliers chosen.
    - ii) Points made correctly included:
      - too much confidential information given;
      - too much description of business;
      - detail on request does not allow suppliers to come up with superior configurations;
      - time frame not given;
      - objectives not set out.
- Q.5 (a) Well done
  - (b) Most answers were very satisfactory.
  - (c) Poor to bad.
  - (d) Many students put pointers and chains into file; many put it in indexed - sequential form. Contents were satisfactory but few actually went through the search well. Often they would sort by territory as the primary key, and gross sales as secondary key, then read the first five.

# ADVANCED SYSTEMS 525 EXAMINATION March, 1985 EUCOBETHD SOLUTIONS

Marks Time: 3 Hours

16 Q.1

- (6) (a) i) A centralized structure places data processing resources in a common physical location and administration unit within the organization.
  - ii) A distributed structure disperses data processing resources to individual locations or administrative units within the organization. (See the Burch, Strater and Grudnitski text, p. 110.)
  - (4) (b) i) In a centralized structure, information in detailed form would be transmitted from a site location to headquarters since all processing would be done on a central computer.
    - ii) In a distributed structure, all or most of the detailed information would be processed at the site location, while only selected data or summarized data would be transmitted to a computer at headquarters.
  - (6) (c) The following are advantages of a distributed structure:
    - i) It is easily adaptable to organizations which are characterized by management style, service/product, or geographical diversity.
    - ii) It supports the concept of matching responsibility and authority.
    - iii) It permits a more flexible approach to solving individual user needs.
    - iv) Its relative size and lack of complexity allow it to be more easily managed.
    - v) It provides job enrichment by allowing individuals to share or split responsibilities (e.g., programmer/analyst, programmer/operator).
    - vi) Management of the local subunit will have an additional incentive to be concerned with system design, efficiency of data processing and control of data processing, especially if they are a profit centre.

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- 20 0.2
  - (5) (a) Documentation shows the manager, auditor, users, etc., what the system is supposed to be and how it should perform. Besides improving overall operation, management, and auditing controls, documentation also serves the following purposes:
    (1) improves communication; (2) provides reference material for what has happened in the past; (3) provides a guide for systems maintenance, modification, and recovery; (4) serves as a valuable tool for training and educating personnel; (5) reduces the impact of key personnel turnover; (6) provides the means for reconstruction if computer programs are destroyed.
  - (9) (b) The documentation that directly relates to the computer-based information system and its operation is made up of three types: general systems, procedural, and program. General systems documentation provides quidance and operating rules for users when interfacing with the system. This part of documentation includes a user's manual that describes what the system is and how to receive services from it. It provides names and addresses of key personnel to contact, prices, and overall objectives. It also states the systems development method that was used and both the systems analysts' and users' responsibilities relating to it. The reports (e.g., General Systems Design Report) prepared during the development of the system provide for the overall documentation of the system itself. The procedures manual introduces all operating, programming, and systems staff to the master plan of the system; computer operating standards, controls, and procedures; and programming standards and procedures. It is updated by the use of periodic guidelines. Program documentation consists of all documents, diagrams, and layouts that explain aspects of the program supporting a particular systems design. The following comprises a typical program documentation manual:
    - 1) general narrative and general systems flowchart
    - 2) program flowcharts
    - 3) job control language
    - 4) program listings
    - 5) testing procedures
    - 6) sample printout
    - 7) controls
    - 8) operating instructions
    - 9) approval and change sheet
    - 10) programming aids

Continued...

- (6) (c) i) Computer operators should have access only to that portion they need for operating the computer. Access to all of the documentation would provide the computer operator the opportunity to gain the necessary knowledge of the programs to manipulate them.
  - ii) Internal auditors should have unlimited access to systems documentation. If the auditors are to perform their proper control function, the systems analysts should be notified that internal auditors have the right to examine the documentation immediately upon request.
  - iii) Systems analysts need access to the documentation for which they are responsible. In a large organization it may be necessary to restrict the systems analysts' access to only those systems which they are responsible for monitoring.

### 20 Q.3

### (10) i) Test Decks

This term denotes a technique associated with auditing through the computer. The term "test data" refers to the same basic technique. Another related term "test data generator" is found in the literature and refers to an automated method of generating test data.

The test data technique requires preparation of input data that are processed under the auditor's control by the client's processing system. The perfect set of test data contains every possible combination of input data, including erroneous data, that causes execution of all logic contained in the process under examination. The output generated by the test data is usually compared to the auditor's predicted output, and differences in the two sets of output are examined.

The major advantage of this technique is its improvement on the "auditing around the computer" approach with little increase in technical training by the field auditor and the potential for increased process examination by the test data designer. It can be a particularly effective technique if the variety of possible conditions is limited.

Continued...

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The auditor is forced to become familiar with the logic of the process being examined to design test data effectively. However, use of this technique does not necessarily imply that the auditor has adequately examined the process. First, the program tested may not be the one that processed client data; and second, identical sets of test data may give rise to identical outputs from different processes. Without complete control over client programs and directly examining the process itself, these problems cannot be resolved. However, a test deck addressing all possible inputs would contribute to an increasing probability that the process, however structured, would produce reliable output. Thus, the major problem associated with test decks is the design of comprehensive test data.

Finally, this technique is usually thought to be incomplete or inconclusive in large, complex systems. The major contributing factor to that connotation is the procedure of examining only preconceived conditions in the process. However, it is used in conjunction with other techniques to form more effective audit methods.

#### (10) ii) Parallel Simulation

In parallel simulation, the auditor creates a set of application programs that "simulates" processing functions in "parallel" with the operational processing system. This technique consists of the following procedures:

- (a) Define application functions that are to be verified.
- (b) Understand processing logic.
- (c) Define machine readable inputs and outputs of data to be used.
- (d) Use audit software to prepare a process consistent with logic determined in (b).
- (e) Execute operational and simulated systems with data from (c).
- (f) Identify and examine discrepancies.

Continued....

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Parallel simulation has been proclaimed to be the best method for detection of fraudulent codes and one of the most powerful tools for verification of phases of processing. Closer examination of this technique reveals that it is an automated version of auditing around the computer or "auditing around the computer with the computer". All the disadvantages of auditing around the computer are applicable, i.e., the intermediate printouts (audit-trail components) may not provide enough detail or simply will not be available; contemporary systems often produce data too voluminous for manual examination in a reasonable timeframe; and no formal inference can be made concerning how the process handles data that are not examined. However, the number of data records that can be simulated is increased substantially.

The example of the adroit programmer who rounds pennies and adds fractions to his or her account still illustrates a fraudulent activity that has a low probability of being detected, given a large number of accounts and a materiality measure of a reasonable magnitude. Since most financial programs round to cents, the .01 cent difference in several accounts could easily go unnoticed.

Parallel simulation is a substantial improvement over its manual analog, particularly in the volume of transactions considered. Parallel simulation is a good example of a technique that on a cost/benefit basis may be found to be quite satisfactory in a wide variety of audit settings. When coupled with a generalized audit software (GAS) package, it is a formidable tool.

21 2.4

(9) (a) Computing utility. In this mode your organization performs all of the tasks except the mechanical information processing performed by computers and their peripheral equipment. A supplier (could be more than one) will provide processing service at its location or at yours by means of terminal and transmission devices. The important point is that your organization is buying computing time as needed, just as it buys electrical power.

Time-sharing. This is a particular form of computing utility service in which a number of clients share the capacity of a large computing installation through specially designed devices and software. Each user has the illusion of being in command of a high-powered computer. Access to the service company's computer is often made by ordinary telephone lines.

Continued...

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Facilities management. This term describes the take-over and operation of a client's data processing activities by a service company. Typically in this mode, the service company supplies people and hardware, frequently on the client's premises. The important point is that the supplier has responsibility for the data processing results, rather than just the provision of mechanical processes. In industry, "facilities management" sometimes means something less than total computing responsibility.

#### (12) (b)

#### (6) i) Procedures

- The controller and internal auditor should not have been the primary people to develop the RFP. Preferably, it should be developed by people who are qualified to assess technical feasibility and operational feasibility as well as by those who are qualified to assess economic feasibility. Thus, others who should have been directly involved include computer systems analysts, managers in the affected areas (i.e., payroll, accounts payable, and general ledger), and perhaps consultants.
- The RFP should have been reviewed and approved by higher-level management, such as members of a steering committee, before it was mailed.
- Certain key phases of the systems development cycle i.e., systems planning, systems analysis, and systems design should have accompanied the preparation of the RFP. (It is not apparent from the problem that they were.) The results from these phases would have clarified and validated the specific requirements and specifications for an in-house computer system.
- The RFP should have been sent to only a few (say, six) suppliers of computer systems. Proposals from 25 suppliers would be overwhelming; they could not be examined with sufficient care to enable a prudent choice to be made within a reasonable period of time.
- No deadline date was established. A date, perhaps 30 to 60 days in future, should have been specified.

### (6) ii) Contents

 Objectives with respect to the applications (i.e., payroll, accounts payable, and general ledger) were missing; they should have been clearly stated.

Continued....

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- Constraints on the amount to be invested in the new systems were not mentioned; an upper limit should have been specified.
- Required capabilities of the new system were not mentioned; required capabilities such as response times, storage capacities, error detection techniques, maximum allowable down-time, and inquiry facilities should have been stated in detailed and (where possible) in quantitative terms. It should have been made clear that any proposal not providing all stated capabilities would be disqualified.
- While considerable details were provided, others were missing; thus diagrams of physical locations, forecasts of expected transaction volumes, specimen source documents, screen formats, report formats, and similar descriptive items should have been provided.
- The support required from the vendor in terms of personnel, training, test time and facilities, backup provisions in case of hardware failure should have been mentioned.

23 Q.5

(a)

Under the traditional approach to data management, separate data files are maintained for individual application programs. To answer a question such as, "Which salespeople, who have been with the firm less than one year have sold product Q to customers who owe the firm more than \$50,000?", relevant data would have to be individually retrieved from such files as (1) the personnel file, (2) the sales history file, and (3) Each record in all the accounts receivable master file. three files would need to be examined, since the records are not sequenced according to the objects of the inquiry (e.g., salespeople's records are generally not arranged according to years of service). As a consequence of these searches, a listing of salespeople who have been employed for less than one year would be obtained from the personnel file; a listing of customers owing the firm more than \$50,000 would be obtained from the accounts receivable master file; and a listing of sales of product Q to specific customers would be obtained from the sales history file. Then, it would be necessary to compare these sets of retrieved data to select those salespeople who meet the stated criteria. This process would be error-prone, time consuming, and costly. In fact, a special retrieval program would probably need to be written.

Continued...

- (6) (b) In this instance, three inverted lists organized according to plant numbers, years of seniority, and hourly wage rates would be appropriate. A search procedure (by the data base software) would consist of comparing disk addresses within the relevant portions of the inverted lists and listing those employees whose addresses match on all three specified attribute values.
- (5) (c) To ascertain the top five salespeople in terms of gross sales last month in Sales Territory 10, a tree structure having three levels could be employed. The owner record could be a sales territory record; the middle record could be a salespeople record, and the bottom record could be a sales record. A search procedure would consist of accessing the record for Sales Territory 10 and then following pointers to all the salespeople in that territory. For each salesperson, pointers would be followed to their sales records. Sales levels would be compared until the last month's top five salespeople are located.
- (6) (d) Data items needed, among others, are: salesperson number, name, number of the sales territory, gross sales per month last year or last quarter. In order to answer the query in a sequential file, every record has to be read. The program could set aside in memory every record that represents a salesperson in Territory 10 and later sort them on gross sales to find the top five salespeople. Alternatively, the program could search for salespeople in Territory 10 and keep the top five in terms of sales in its memory, by comparing the gross sales of each Territory 10 record it finds (reads) to the ones it has read previously.

100

END OF SOLUTIONS

## ADVANCED STRIPPE 525 EXAMINATION June, 1985

Marks Time: 3 Hours

- 27 Q.1 The Motor Vehicles Department of an eastern Canadian province maintains two essential master files.
  - I. A vehicle-owner master file, which contains the owner's name, address, postal code, driver's licence number, expiration date of licence, date of birth, Social Insurance Number, physical characteristics, and driving restrictions.
  - II. A motor vehicle master file, which contains the vehicle's identification number, make, year of manufacture, model or style, color, and owner's name and vehicle licence number.

Currently, the files are organized sequentially and are independent of each other. However, the Motor Vehicles Department has decided to acquire a data base management system, so that the data in the two files can be structured to answer key inquiries.

#### REQUIRED:

(a)

- (6) i) Specify the schema needed to answer both of these questions:
  - 1. If the owner's name is XXX, what vehicles are owned by him or her and what are their features?
  - 2. If the vehicle's licence number is YYY, who is the owner or owners, and what are the details concerning the owner(s)?

Use data structure diagram(s) as well as a narrative description to specify the  $\underline{\text{schema}}$ .

- (3) ii) Specify the subschema needed to answer only question 1 above.
- (3) iii) Specify the subschema needed to answer only question 2 above.

In both of these cases use data structure diagram(s) as well as a narrative description to specify the  $\underline{\text{subschema}}$ . Identify the parent and child records.

Continued...

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- (5) (b) For each of the <u>subschemas</u> and the <u>schema</u> you have specified in part (a), indicate if it is a tree or network structure.
- (5) (c) Specify the record data fields for the vehicle-owner master file, and the motor vehicle master file.
- (5) (d) Explain why inverted lists are not appropriate to use as a means of increasing the ease and timeliness of data retrieval for the questions posed in part (a).
- 25 Q.2 (a) The Lethbridge Electronics Company processes inventory receipts as they arrive at the receiving dock by means of online data terminals located in the Receiving Department. All of the six Receiving Department employees have been taught to operate the terminals. Each inventory receipt entered into the system is processed to update the appropriate records in both (1) an inventory master file, and (2) a file of open purchase orders.

#### REQUIRED:

- (5) i) What data items should be entered into the system each time an operator uses the terminal to report the receipt of a shipment?
- (10) ii) Describe several means by which the system could be programmed to check the accuracy and validity of the input data entered from the Receiving Department. Relate your answer specifically to the data items mentioned in part (a).
- (10) (b) The Niagara Company of London, Ontario is in the process of computerizing several of its accounting applications. It has three programmers and wants you to allocate the programming among them to maximize internal control and minimize fraud. The programs will perform the following functions:
  - i) Maintain general ledger
  - ii) Maintain accounts payable ledger
  - iii) Maintain accounts receivable ledger
  - iv) Print cheques for signature
  - v) Maintain cash disbursements journal
  - vi) Issue credits on returns and allowances
  - vii) Reconcile bank account

#### REQUIRED:

Allocate these programs to the programmers in the best way. Justify your allocation; for example, "Programmer 1 should write the programs that do \_\_\_, \_\_\_, \_\_\_ because \_\_."

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20 0.3

- (10) (a) Explain the purpose and reasons for surveying an organization's existing system during a systems study.
- (10) (b) What are the techniques for gathering and analyzing facts during the analysis phase of the information system development process?

12 0.4

(6) (a) Demand reports are produced when requested by managers; they are generally intended to answer specific inquiries or to provide analyses pertaining to ad hoc problems.

Such reports have become more common in recent years with the development of computer systems to support management decision-making. Ideally, should all reports be provided on demand? Explain.

(6) (b) Will aggregation of operational level transaction data be sufficient for strategic decision-making information needs? Why or why not?

16 Q.5

- (4) (a) Computer manufacturers generally employ very competent personnel who will assist a customer in designing a system for no charge or for a relatively small fee. Being good business people interested in repeat sales, representatives of a computer manufacturer will consider very seriously the needs and objectives of the customer. Why, then, should a firm contemplating the acquisition of a computer system for the first time, consider employing the relatively expensive services of an EDP consultant?
- (12) (b) Purchasing and renting are two of the methods for financing computing equipment acquisitions. In order to make a sound financing decision, what factors should be considered; that is, what factors should be used as inputs to the decision process?

100

END OF EXAMINATION

Page 3 of 3

# ADVANCED SYSTEMS 525 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### Specific

- Q.1 (a) i) A large number of students did not appear to have an adequate understanding of this topic. Many students made up two schemas, others did not link the records together or show the links, and others made one long record of the two.
  - ii) & iii) Most students understood how the question would be answered, but did not see the relationship as one between records, but instead as one between fields. Many students indicated that the key field was the parent with the secondary fields as children.
  - (b) Most of the students could give definitions of tree and network structures. Errors were primarily due to misunderstandings of how the schema in part (a) was laid out.
  - (c) This question was generally well answered; few students specified the key fields in the files.
  - (d) Most students explained that the size of the files made inverted lists not feasible. Very few recognized that inverted lists are useful for sorting on secondary keys within files.
- Q.2 (a) i) Students generally performed well on this question. A user code was a standard item omitted in many answers.
  - ii) Most students performed quite well on this question. Few students mentioned completeness checks or closed loop verification.
  - (b) This question was not particularly well handled. Most realized that a separation of functions was required, but none mentioned the need to separate control of assets and recording of accounts for those assets. Only one student gave the allocation of programs suggested in the solutions. Very few recognized that programming A/R and A/P would be distinct functions which could be performed by a single programmer.
- Q.3 (a) Students placed too much emphasis on determining the effectiveness of the present system. Resource recognition and conversion knowledge were items that were seldom mentioned.
  - (b) This question was generally well handled. Very few students missed the suggested items. Some did not give descriptions of what each instrument should be used for.

Continued ...

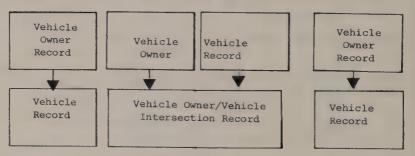
- Q.4 (a) This question was done moderately well. Very few students mentioned the needs for historical reports to fulfill legal obligations. The need for variance/exception reports was recognized.
  - (b) Several students did not understand that aggregation implied summarization. Most students recognized that information other than operational data was required for strategic decision making. Responses usually stressed either external or future oriented information but seldom both.
- Q.5 (a) This was well done, most students realized the rationale for using EDP consultants.
  - (b) This question was reasonably well done. There were not consistent errors or omissions in the responses. Intensity of use was not mentioned often.

# ADVANCED SYSTEMS 525 EXAMINATON June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

27 Q.1 (a)

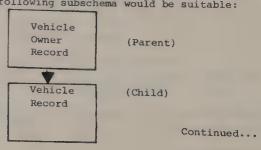
(6) i) What is the <u>overall</u> schema that ties together the separate schemas (or subschemas)? This overall schema is the object of questions (1) and (2), since the data base system should be able to accommodate both types of inquiries interchangeably. To answer this question, it should be recognized that a many-to-many relationship exists. If this relationship is reflected in a data structure diagram, it will express the overall schema of the data base. Three alternative diagrams may be employed:



The centre diagram, which shows the creation of an intersection record, represents the approach generally employed in the implementation of a many-to-many record relationship.

### (3) ii) Subschema

If the question pertains to owned vehicles, given the name of the owner, the following subschema would be suitable:

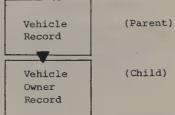


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In this situation the vehicle owner's record (parent) "owns" the vehicle records (child); a pointer in the vehicle owner record shows the disk address of the first owned vehicle record. A pointer in this latter record also shows the disk address of the second owned vehicle record (and so on). When the vehicle records are accessed, their details can be printed or displayed for the use of the inquirer.

#### (3) iii) Subschema

If the question pertains to owners' identities, given the licence number of a vehicle, the following subschema would be suitable:



In this situation the vehicle record (parent) "owns" the vehicle owner records (child); a pointer in the vehicle record shows the disk address of the first vehicle owner record. A pointer in this latter record would indicate the disk location of a co-owner, if any (and so on). When the owner records are accessed, their details can be printed or displayed for the use of the inquirer.

- (5) (b) The schema is a network structure; both subschemas are tree structures.
- (5) (c) Record layouts, ignoring field widths, are as follows:

#### Vehicle Owner Record

Owner's			Driver	Expiration
Name, last	Owner's	Postal	Licence	Date of
name first*	Address	Code	Number	Licence

Date of Birth	Social Insurance Number	Physical Charac- teristics	Driving Restric- tions	Pointer to Vehicle (or inter- section Record
---------------	-------------------------------	----------------------------------	------------------------------	--

<sup>\*</sup> Primary key

Continued...
Page 2 of 7

#### Vehicle Record

Vehicle's Identificati Number	on Make of Vehicle	Year of Manufacture	Model or Style	Color
Owner's Name, last name first	Vehicle Licence Number*	Pointer to Owner (or intersection Record	1)	

#### \* Primary key

- (5) (d) The required searches take place between two types of records, not among the attributes within a single file. The key data items in the stated inquiries are the primary keys, rather than the secondary keys. However, if the focus of concern were to shift to secondary keys (e.g., "Who are the owners of blue 1980 Acadians?"), inverted lists would be useful.
- 25 Q.2
  - (5) (a) i) Items of data entered into the system by an operator should include:
    - a user code number;
    - a code identifying the type of transaction;
    - the purchase order number;
    - the inventory stock number;
    - the quantity received.
  - (10) ii) Programmed data checks might include:
    - a validity check of the user code number;
    - a validity check of the transaction code;
    - a compatibility test of the type-of-transaction code relative to the user code to assure that receiving department employees only enter inventory receipt transactions;
    - validity checks of both the purchase order number and the inventory stock number, which are performed by checking whether those numbers exist in the respective files;

Continued ...

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- a completeness test of each transaction to ensure that all required data elements have been entered;
- a field check of the characters in the purchase order number and quantity received fields to reveal whether any non-numeric characters are present in those fields;
- closed loop verification, which would have the system display the item description and vendor name to the operator for verification;
- a reasonableness test of the quantity received relative to the quantity ordered.
- (10) (b) Programmer 1 would write the program that prints the cheques and the program that issues credits on returns and allowances. Programmer 2 would write the accounts payable and the accounts receivable programs. Programmer 3 would write the general ledger, the disbursements journal and the bank reconciliation programs.

An important principle of internal control is that an individual who has custody over assets should not also have access to the records which account for those assets. the situation presented in this problem there are two programs which are related to custody over assets: (1) the program which prints the cheques, and (2) the program which issues credits on returns and allowances. Therefore, these two programs should be assigned to a single programmer who does not also write and maintain programs which account for the assets involved. The other five programs are basically record-keeping programs that can be assigned to the remaining two programmers on the basis of the programming efficiency. Since accounts payable and accounts receivable systems tend to be mirror image systems, these two can be assigned to a single programmer. The remaining three programs: general ledger, disbursements journal and bank reconciliation can be assigned to a third programmer. The fact that the general ledger contains control accounts over accounts payable and accounts receivable also adds a measure of segregation of duties between the second and third programmer.

20 Q.3

(2) (a) Effectiveness of present system. Studying the old system provides an opportunity to determine whether that system is satisfactory, is in need of minor repair, requires a major overhaul, or should be replaced. To design a new system without this consideration might be comparable to purchasing a new car without knowing whether one's present car may only be out of gas.

Continued...

- (2) Design ideas. Analyzing the old system can provide the analyst with an immediate source of design ideas. These ideas include what is presently being done and how, as well as what additional needs or capabilities have been requested over the years. The analyst is able to gain an insight into how the present information system serves the decision-making function as well as to ascertain key relationships.
- (2) Resource recognition. Examining the present system allows the analyst to identify the resources available for the new system or subsystem. These resources might include the management talent, the clerical talent, and the equipment currently owned and operational.
- Conversion knowledge. When the new system is implemented, the analyst is responsible for having previously identified what tasks and activities will be necessary to phase out the old system and begin operating the new system. To identify these conversion requirements, the analyst must know not only what activities will be performed, but also what activities were performed. Studying the present system gives the analyst the "what was" answer.
- Common starting point. When communicating with management, the systems analyst is an agent of change. As such, often the analyst will be confronted with resistance to new techniques, ideas and methods; lack of understanding of new concepts; procrastination in obtaining decisions; lack of commitment to making the new system work; and other similar manifestations of people being asked to change familiar activities. To minimize these reactions, the analyst can compare and contrast the new system to the old system and demonstrate that it is not entirely new.
- (10) (b) Study and review the existing organization structure to determine how it functions. Develop organization charts.

Review and collect internal documents and reports to determine design, content, use, frequency of preparation, etc.

Develop and use <u>questionnaire</u> forms to determine processing frequencies, input/output volumes, and other information useful to the systems study.

Conduct personal interviews with operating personnel to confirm and expand upon data gathered from the questionnaire.

Develop  $\frac{\text{flowcharts}}{\text{decision tables}}$  for both the system and the documents.

12 0.4

(6)

(a) Reports on demand have become more common in recent years and should continue to increase in coming years. Since they contain only the information specified by users (such as managers), they are extremely relevant to the users' needs. Generally these needs relate to decisions for which the users have responsibility. Expressed differently, they relate to problems for which the users must find solutions.

However, reports serve other purposes than aiding users in finding solutions to problems (i.e., in making decisions that point to the future). Reports also provide historical logs of past activities (e.g., operational results of past years) and fulfill legal and stewardship obligations (e.g., annual reports to shareholders). Furthermore, reports aid in "finding" problems that need solutions. This last type of report provides warnings of possible dangers or of incipient disaster. A vivid example of this type of report is a report of outage, which is generated within an electric utility when a section of the transmission or distributed system is disabled (perhaps by a bolt of lightning). Less vivid but more common problem "finding" reports include production cost variance reports, accounts receivable aging reports, and project control reports. To be effective, such reports must be issued in a timely manner and on a scheduled basis. Since their purpose is to alert managers to problems of which the managers are unaware, such reports cannot be demand reports. Still another type of report has the purpose of alerting managers to possible opportunities. Examples of such reports are summaries of new business computer software packages and listings of firms that represent prospects for mergers. As these examples suggest, reports concerning opportunities are not usually provided on demand, although they may be in some cases.

In summary, although demand reports are increasing in number, a variety of non-demand reports will always be needed by the typical firm.

(6) (b) Generally, strategic level decision-makers are more interested in aggregated data, rather than the detailed data required by the operational levels, since they are interested in obtaining an overall picture of the organization. However, strategic level decisions are characterized by a great deal of uncertainty and are future oriented. Strategic level managers depend mostly on information generated external to the organization; information which might be speculative; information that is "predictive — future oriented" and "simulated — what if" in nature. Therefore, aggregated internal information is only one part of their total information sources.

- 16 0.5
  - (4) (a) Independence is the trait which makes the services of the EDP consultant valuable. Representatives of the computer manufacturer must put their company first and the customer second, whereas a consultant is under no such constraint. The EDP consultant's advice is particularly valuable to firms which have no prior experience with computers, for they are most easily misled by manufacturers' representatives. If a firm cannot afford the services of an EDP consultant, it probably also cannot afford to acquire a computer.
  - (12) (b) 1) Past experience with similar data processing equipment. For instance, a firm normally should not purchase its first computer, since it could make a serious, irreversible mistake through inexperience. (Note: this proviso is not true for low-priced microcomputers.)
    - 2) Expected economic life of the equipment. The longer a firm expects to use equipment such as a computer, the greater the difference in cash outlays between purchasing and renting. If a firm plans to retain a computer longer than a few years, it should carefully consider the purchase option.
    - 3) Expected intensity of use. If a firm plans to use a new computer for two or three shifts, it will be inclined to purchase, since additional shift usage often involves higher renting costs.
    - 4) Availability of funds. If funds are not readily available, or if interest rates are relatively high, the renting option is likely to be preferred.
    - 5) Expected resale value of equipment (if purchased). The higher the expected resale value, the more advantageous the purchase option.
    - 6) Changes to equipment or risk of equipment obsolescence. The higher this risk the better the rent option is.
    - 7) Income tax considerations.

100

END OF SOLUTIONS

S525J85

## ADVANCED FINANCE 526 EXAMINATION March, 1985

Marks		Time 3 Hours
		NOTE: Show all your calculations. Remember that marks are allocated on the basis of the quality of an answer, not the amount written. Two tables are attached.
12	Q.1	Compare and contrast corporate financing and federal government financing.
8	Q.2	Outline, and explain the differences in, the asset holdings of life insurance companies and property and casualty insurance companies in Canada.
14	Q.3	Consider an investor who maintains a personal investment portfolio over a three-year period. She starts with \$1,000. At the end of the first year the portfolio is worth \$1,200. She then chooses to withdraw \$400 from the portfolio. At the end of the second year the portfolio is worth \$700. She then chooses to invest a further \$200. At the end of the third year her portfolio is worth \$1,500.
		REQUIRED:
	(5)	(a) Find the annual arithmetic average return on the portfolio over the three-year period.
	(3)	(b) Show that the annual geometric mean return on the portfolio over the three-year period is 20.5%.
	(3)	(c) Show that the annual internal rate of return on the portfolio over the three-year period is 22.95%.
	(3)	(d) Which of the three measures of return is the most relevant to the investor? Explain.
12	Q.4 (3)	(a) Define leading, lagging, and coincident indicators of economic activity.
	(6)	(b) Give an example of each of the items in part (a) and specify the economic reasons for the classification of each example.
	(3)	(c) What characteristic must a leading indicator have to be of use to a stock investor?
14	Q.5	Consider a bond issue with 21 months left until maturity. The coupon rate of the bond is 14% and interest is paid semi-annually. (Thus, there are 3 months until the next interest payment.) The current market yield to maturity of the bond is 12%, compounded semi-annually.
		REQUIRED:
	(6)	(a) Calculate the current price of a bond with a face value of \$1,000.
	(2)	(b) How much money would change hands in the purchase of the bond in part (a)?
	(6)	(a) Why are hands priced such that the answers to parts (a) and (b) are not the same?

- 14 Q.6
  - (4) (a) Define what is meant by the "time premium" on a call option.
  - (5) (b) Explain why there is a positive relationship between the volatility of the price of a stock and the time premiums on its call options.
  - (5) (c) Outline the relationship between the time premium on a call option and the current price of the underlying common stock. Use a diagram if necessary.
- Q.7 Consider the closing prices for the months October through February for the common shares of AJB Ltd. and JRC Co.:

	AJB Ltd.	JRC Co.
October	\$10.750	\$43.200
November	11.288	44.556
December	10.949	45.893
January	10.511	44.975
February	10.301	44.525

The JRC Co. shares went ex-dividend on November 16. The dividend of \$2.10 per share was mailed out on December 5.

#### **REQUIRED:**

- (6) (a) Calculate the one-month holding period returns for AJB and JRC common stock for the months November through February.
- (4) (b) Using the four holding period returns for AJB and for JRC calculated in part (a), estimate the correlation coefficient of returns for the two stocks for March.
- (4) (c) Discuss the relevance of this correlation coefficient for the investor who is considering forming a portfolio which includes the two stocks.
- 12 Q.8 Compare and contrast the following three methods of equity portfolio management:
  - (a) buy and hold
  - (b) asset-by-asset
  - (c) efficient markets.

100

**END OF EXAMINATION** 

Present Value of III Annuity of \$1

Year 1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 10.990 0.980 0.971 0.909 2 1.970 1.942 1.913 1.866 1.859 1.831 1.808 1.781 1.759 1.736 3 2.941 2.884 2.829 2.775 2.723 2.673 2.624 2.577 2.531 2.487 4 3.902 3.808 3.777 3.630 3.546 3.465 3.87 3.312 3.240 3.170 5.425 5.701 5.42 5.702 6.425 2.77 2.531 2.487 4 3.902 3.808 3.777 5.20 5.701 6.452 4.325 4.713 5.502 5.706 4.917 4.766 4.623 4.486 4.335 7 6.728 6.472 6.230 6.002 5.786 5.826 5.89 5.206 5.033 4.868 8 7.652 7.325 7.020 6.733 6.463 6.210 5.971 5.747 5.535 5.335 9 8.566 8.162 7.786 7.435 7.108 6.802 6.515 6.247 5.355 5.035 6.495 11 0.348 9.787 9.253 8.760 8.305 7.887 7.499 7.199 6.805 6.495 11 0.348 9.787 9.253 8.760 8.305 7.887 7.499 7.199 6.805 6.495 11 0.348 9.787 9.253 8.760 8.305 7.887 7.499 7.190 6.805 6.495 11 0.348 9.787 9.253 8.760 8.305 7.887 7.499 7.199 6.805 6.495 11 0.348 9.787 9.253 8.760 8.305 7.887 7.499 7.190 6.805 6.495 11 0.348 9.787 9.253 8.750 9.295 8.759 9.108 8.550 8.111 8.181 8.181 8.181 8.181 8.182 8.182 8.201 9.172 8.544 8.022 11 1.855 12.851 1.181 8.182 8.182 8.183 8.183 8.183 8.185 8.185 8.201 9.172 8.541 8.201 9.172 8.174 8.181 8.187 8.184 8.185 8.185 9.185 9.185 9.184 8.185 9.185 9.185 9.185 9.185 9.185 9.185 9.185 9.185 9.185 9.007 7.605 1.181 8.182 9.184 8.187 8.181 8.181 8.187 8.181 8.187 8.181 8.187 8.181 8.187 8.181 8.18	Year         12%         14%         16%         18%         20%         24%         32%         32%         36%           1 0.893         0.887         0.884         0.834         0.886         0.781         0.786         0.787           2 1.089         0.687         1.666         1.528         1.457         1.392         1.332         1.276           3 2.402         2.322         2.246         2.174         2.106         1.981         1.868         1.766         1.574           4 3.037         2.914         2.798         2.690         2.589         2.404         2.241         2.096         1.966           5 3.605         3.433         3.274         3.127         2.991         2.745         2.532         2.345         2.181           6 4.111         3.889         3.685         3.494         3.707         2.745         2.532         2.534         2.451           7 4.564         4.288         4.039         3.812         3.605         3.242         2.901         2.756         2.532         2.640           9 5.328         4.946         4.607         4.303         4.031         3.562         3.269         2.930         2.653
Year 1'' 2'' 3'' 4'' 5' 5' 6'' 7'' 8'' 9'' 9'' 10'' 12'' 14'' 15'' 18'' 19'' 9'' 9'' 9'' 9'' 9'' 9'' 9'' 9''	Year 166°, 186°, 206°, 246°, 286°, 326°, 406°, 506°, 706°, 809°, 900°, 186°, 247°, 838°, 856°, 536°, 247°, 838°, 886°, 781°, 758°, 735°, 714°, 667°, 625°, 588°, 556°, 526°, 2,743°, 718°, 694°, 650°, 610°, 574°, 541°, 510°, 444°, 391°, 346°, 309°, 277°, 354°, 699°, 579°, 524°, 477°, 435°, 398°, 364°, 296°, 244°, 204°, 171°, 146°, 452°, 516°, 482°, 437°, 33°, 33°, 836°, 60°, 198°, 153°, 120°, 095°, 077°, 547°, 437°, 40°, 313°, 328°, 60°, 198°, 153°, 120°, 095°, 077°, 547°, 437°, 40°, 373°, 329°, 220°, 260°, 198°, 158°, 133°, 088°, 60°, 041°, 029°, 021°, 735°, 24°, 314°, 279°, 222°, 178°, 143°, 116°, 095°, 039°, 032°, 001°, 227°, 129°, 139°, 108°, 268°, 203°, 203°, 201°, 201°, 227°, 139°, 198°, 268°, 203°, 203°, 201°, 201°, 227°, 139°, 108°, 268°, 203°, 201°, 200°, 201°, 227°, 144°, 108°, 685°, 605°, 304°, 205°, 013°, 000°, 200°, 201°, 11°, 195°, 162°, 135°, 209°, 208°, 209°, 203°, 201°, 200°, 200°, 201°, 200°, 201°, 200°, 20

# ADVANCED FINANCE 526 EXAMINATION March, 1985 EXAMINER'S COMMENTS

#### General

Overall the exam was well done. Many of those who failed could have done better had they read questions 1 and 2 closely and had structured their answers according to what was asked.

#### Specific

- Q.1 Many students did not read the question properly. They were asked to **contrast** corporate and government financing, but merely listed characteristics of each instead.
- Q.2 A number of students had the same problem with this question as with question 1. They mentioned examples of the assets held by different types of insurance companies but did not structure their answers so that the difference in assets were obvious.
- Q.3 Overall, this question was well done, as were questions 1 and 2. A small number of students made the following errors: in part (a) some did not consider contributions and withdrawals in determining the base value at the beginning of each year, in part (b) some did not take the cube root of the product of returns, and in part (c) some used returns rather than contributions and withdrawals in the expression for internal rate of return.
- Q.4 A number of students were vague about whether they were writing about the economy as a whole or just the stock market in parts (a) and (c). Some did not "specify economic reasons" for their choices in part (b).
- Q.5 This question was well answered except for part (c). Many students missed the point that including accrued interest in the "price" would mean that the price would move up and down with the cycle of interest payments.
- Q.6 Many students did not have an accurate definition of the time premium of an option. A related error was the misinterpretation of part (c) by trying to explain the relationship between time to expiry and option price, rather than between time premium and the price of the underlying stock.
- Q.7 Almost half of the students did not know how to calculate the correlation coefficient asked for in part (b). More than half did not know in which month to put the dividend.
- Q.8 This question was well answered, although many did not know the efficient markets approach to equity portfolio management.

#### ADVANCED FINANCE 526 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 Q.1 Private industry raises external financing in the form of short-term debt (mainly commercial paper, loans and trade credit), long-term debt (in the form of bonds and mortgages), leases, and equity (both preferred and common).

Governments finance a mismatch between expenditures and tax revenues through short-term debt (mainly treasury bills, loans and trade credit) and long-term debt (in the form of bonds and debentures). They also lease some assets.

The basic difference is that governments cannot sell equity. It is also generally true that the amount of funds raised externally by governments is much larger in total than that raised by private industry in Canada.

NOTE: 2 marks for each point to a maximum of 12 marks.

Q.2 In Canada, property and casualty insurance companies have more short-term assets than life insurance companies do; fewer mortgages, more bonds, debentures and corporate equity securities, and fewer investments outside Canada.

In general, property and casualty insurance companies maintain more liquid portfolios with fewer long-term assets such as the long mortgages that life insurance companies carry. This is because the actuarial liabilities of property and casualty insurance companies are short-term, generally tied to one year contracts; whereas the actuarial liabilities of life insurance companies are still long-term, although yearly term life insurance coverage has become more popular in the last few years.

The foreign investments of life insurance companies derive from their success over a long period as businesses both here in Canada and elsewhere and are not an essential part of their business.

**NOTE:** 5 marks for differences in portfolios 3 marks for reasons

14 Q.3  
(5) (a) 
$$R_1 = \frac{1,200-1,000}{1,000} = .20 \text{ or } 20\%$$

$$R_2 = \frac{700-800}{800} = -.13 \text{ or } -13\%$$

$$R_3 = \frac{1,500-900}{900} = .67 \text{ or } 67\%$$

Arithmetic mean:

$$\frac{R_1 + R_2 + R_3}{3} = \frac{.20 + (-.13) + .67}{3} = .25 \text{ or } 25\%$$

(3) (b) Geometric mean:

$$\begin{bmatrix} (1+R_1)(1+R_2)(1+R_3) \end{bmatrix}^{-1/3} -1$$

$$= \begin{bmatrix} (1+\frac{200}{1000})(1+\frac{-100}{800})(1+\frac{600}{900}) \end{bmatrix}^{-1/3} -1$$

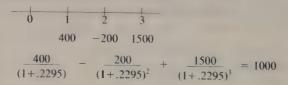
$$= \begin{bmatrix} (\frac{1200}{1000})(\frac{700}{800})(\frac{1500}{900}) \end{bmatrix}^{-1/3} -1$$

= .205 or 20.5%

or approximately

$$[(1 + .20) (1 - .13) (1 + .67)]^{-1/3} - 1 = .204 \text{ or } 20.4\%.$$

(3) (c) 1000



Therefore, the annual internal rate of return is 22.95%.

(3) (d) The most relevant return measure for the investor is the internal rate of return. It is better than the geometric mean because the investor does control the cash flows in and out of the portfolio. It is better than the arithmetic mean, which is not a good measure of multi-period return. 12 O.4

(3) (a) Lagging indicators generally turn and change direction after economic activity; leading indicators turn before economic activity.

Coincident indicators turn at the same time as economic activity, and are often used to measure it.

- (6) (b) Answers will differ. The following is sample answer:
  - (i) Leading indicator: stock prices. Reason: stock price movements are caused by changes in supply and demand, which in turn are the result of decisions by investors trying to forecast economic variables like dividends and interest rates.
  - (ii) Lagging indicator: unit labor cost index. Reason: as economic activity increases, the profits available to pay workers and the leverage that workers have because of increased capacity utilization both increase. This leads to higher and more successful wage demands. The contrary holds when economic activity decreases.
  - (iii) Coincident indicator: cheques cashed. Reason: as economic activity increases or decreases, the number of financial transactions changes correspondingly; and hence so does the number of cheques cashed.
- (3) (c) A leading indicator must anticipate economic activity before the stock market in order to be of use to the stock investor. In an efficient market, leading indicators are not useful.

14 Q.5  
(6) (a) 
$$P_{m} = \frac{70}{1000} + \frac{70}{1000} + \frac{1070}{1000} - 70(1-3/6)$$
  

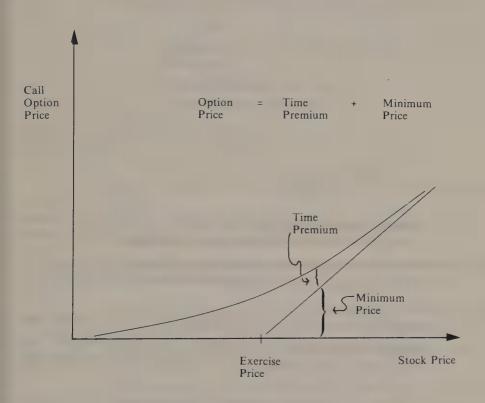
$$= 1065.24 - 35$$
  

$$= 1030.24$$

The current price of the bond would be \$1,030.24.

- (2) (b) \$1,065.24 would change hands.
- (6) (c) \$35 is subtracted from the present value of the future cash flows available from the bond, which is \$1,065.24, to account for the interest which has accrued for the previous three months to the current holder of the bond. Otherwise bond prices would move up as a coupon payment approached and would drop when the coupon was paid. Because bond coupon yields are relatively high and because in general bond yields to maturity are fairly stable, were not bond prices so adjusted for accrued interest there would be a very noticeable cycle in bond prices. Equities prices, preferred and common, are not adjusted in this way and their prices do cycle with dividend payments.
- 14 Q.6
  - (4) (a) The time premium of a call option is the difference between the price of the call option and the minimum price of the call option, which in turn is the maximum of 0 and the difference between the stock price and the execution price of the option.
  - (5) (b) If the price of the underlying stock is volatile, there is a greater chance of the exercise value of the call option becoming large sometime during the life of the option. As a result, the time premium is greater.
  - (5) (c) The relationship is best outlined with a diagram:

Continued . . .



(10) (a) and (b) AJB Ltd. JRC Co. 
$$R_{i} \quad R_{j} - \overline{R}_{i} \quad R_{i} \quad R_{j} - \overline{R}_{j}$$

$$5\% \quad 6\% \quad 8\% \quad 6\%$$

$$-3 \quad -2 \quad 3 \quad 1$$

$$-4 \quad -3 \quad -2 \quad -4$$

$$-2 \quad -1 \quad -1 \quad -3$$

$$\overline{R}_{i} = -1\% \qquad \overline{R}_{j} = 2\%$$

$$\Sigma \left(R_{i} - \overline{R}_{i}\right) \left(R_{i} - \overline{R}_{i}\right) = 49$$

$$\Sigma (R_{i} - \overline{R}_{i})^{2} = 50 \qquad \Sigma (R_{i} - \overline{R}_{j})^{2} = 62$$

$$r_{ij} = \frac{49/4}{\sqrt{50/4} \sqrt{62/4}} = \frac{12.25}{(3.54)(3.94)} = 0.878$$

NOTE: (6) marks for the returns

- (4) marks for rii
- (4) (c) The returns for the common stock of AJB Ltd. and of JRC Co. seem to be very positively correlated. Adding one of the stocks to a portfolio already containing the other would add little to the diversification of the portfolio.
- 12 Q.8 The buy-and-hold approach consists of purchasing equities and holding them for a long period of time. The main advantages of this approach are its simplicity and the fact that transaction costs are minimized.

Most Canadian investors, both individuals and corporate, use the asset-by-asset approach. It is based on the principle that superior returns can be earned by identifying mispriced securities. The focus is on individual securities. Both fundamental and technical analysis are used to make buy and sell decisions. There would generally be more transactions if an asset-by-asset approach is used than if a buy-and-hold approach is used.

The efficient markets approach is based on the premise that all stocks are accurately priced by the stock market and that superior returns based on buying and selling mispriced stocks are not available. The efficient markets approach concentrates on the properties of the portfolio as a whole (risk, return, liquidity, etc.) in an attempt to match the portfolio to the needs of the investor.

NOTE: I mark for each point to a maximum of 12 marks.

100

**END OF SOLUTIONS** 

## ADVANCED FINANCE 526 EXAMINATION June, 1985

Marks		Time: 3 Hours
	NO	TE: Show all your calculations. Remember that marks are allocated on the basis of the quality of an answer, not the amount written. Two tables are attached.
10	Q.1	
	(4)	(a) Outline the major assets and liabilities of Canadian chartered banks.
	(2)	(b) Explain what is meant by asset and liability mismatching for a chartered bank.
	(4)	(c) Briefly explain how the return, risk and liquidity of a chartered bank are affected by this mismatching.
9	Q.2	Explain and distinguish between the following:
	(3)	(a) Seasoned and initial primary offerings
	(3)	(b) TSE and OTC
	(3)	(c) Third and fourth market.
9	Q.3	
		(a) Define what is meant by the macroeconomic approach to aggregate stock market analysis.
	(6)	(b) Outline the relationship between the macroeconomic approach to aggregate stock market analysis and the market efficiency hypothesis.
14	Q.4	Compare and contrast the dividend valuation model and the earnings multiple model of fundamental analysis.
10	Q.5	
		(a) What would be the price of a 45-day treasury bill with a face value of \$1,000,000 if it was priced to yield 12%?
	(2)	(b) What would the yield of the same treasury bill be 15 days later if it was priced at \$991,848?
	(4)	(c) Use the results of parts (a) and (b) to explain what is meant by "riding the yield curve".

- 16 O.6
  - (6) (a) Calculate the duration of a bond which has a maturity of 2 years, a coupon rate of 12% with coupon interest payable every six months, and is priced to yield 14%.
  - (4) (b) If the coupon rate of the bond was 10% rather than 12%, would its duration be higher or lower than that calculated in part (a)? Explain.
  - (6) (c) Explain how duration can be used in bond portfolio management.
- Q.7 Consider a grain elevator operator who realizes in June that he will need a 3-month bank loan of \$600,000 in September to finance wheat inventories. He feels confident that the difference between the 91-day treasury bill rate and the rate at which he can borrow from the bank will stay constant at 2%. At the time in June, 91-day treasury bill futures for delivery in September are selling at 12%. At the same time in June, the operator could borrow for three months from the bank at 15%.

#### REQUIRED:

- (6) (a) How can the operator use the treasury bill futures market to hedge the cost of his bank loan in September? Explain without detailed calculations.
- (4) (b) What approximately is the effective rate on his 3-month bank loan in September if he does hedge and if the 91-day treasury bill rate in September is 16%? Ignore transaction costs. Do *not* use detailed calculations.
- (6) (c) Should the elevator operator hedge the cost of his bank loan? Explain.
- 16 Q.8
  - (4) (a) In the context of modern capital market theory, explain what is meant by systematic and unsystematic risk.
  - (4) (b) Outline the relationship between the number of assets in a portfolio and:
    - i) systematic risk, and
    - ii) unsystematic risk.

NOTE: The use of a graph is permitted.

- (4) (c) What is the relationship between the current price of an asset and its systematic risk which is predicted by the capital asset pricing model?
- (4) (d) Explain in words why the relationship in part (c) makes intuitive sense given the assumptions of the capital asset pricing model.

100

**END OF EXAMINATION** 

736 736 736

8% 0.926 1.783 2.577

.170

3.312

6.814

191. .487

6.145 6.495

6.418 6.805

5 985

6.247 6.710 7.139 7.536 8.244 8.851 9.122 9.372 9.604

6.515 7.499

5.971 7.024 7,103 7.367

7.904 8.559

4.355 4.868 5.335 5.759

1.486

4.623 5.747 7.606 8.022

8.060 8.544

9.108 9.447 9.763

7.824 8.201 3,365 3.514

8.950

0.059

9.818

11.654 10.675

650

.930

269

970.

.459 .503

912 .962

387 .427 .483 518 529 .546

339 540 ..603 683 708 727 740

.759 970. 184 3335

937

.421 .682

345 .534 .678 2.786 2.868 978 013 .040 190. .088 104

2.532

960.

# ADVANCED FINANCE 526 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### General

Except for some misinterpretation of questions 2 (a) and 8 (c) and (d), and very poor performance on question 6 (c), the exam was similar to those held previously and was adequately done.

#### Specific

- Q.1 Although the question was well done overall, a number of students in part (c) did not discuss how return, risk and liquidity were related to mismatching. Rather they discussed return, risk and liquidity in general.
- Q.2 A number of students interpreted part (a) of the question to be to explain and distinguish between "seasoned offerings" and "initial primary offerings" rather than between "seasoned primary offerings" and "initial primary offerings". Allowance was made in marking for this misinterpretation.
  - In part (c), many students did not know what the third market was.
- Q.3 Well done.
- Q.4 Well done.
- Q.5 A number of students knew the correct formula required in part (a) but were unable to follow through with the required calculations.
  - In part (c), many answers were incomplete and poorly written.
- Q.6 In part (a), a few students did not include the final principal repayment with calculating duration.
  - Overall, part (c) was not well done. However allowance was made for the fact that the use of duration in bond portfolio management was not covered very fully in the Lesson Notes.
- Q.7 In part (a), many students reversed the order of the buying and selling of the futures contract by the elevator operator, having the operator buying a contract in June rather than shortening one.

Continued...

Part (b) required an understanding of the problem, not complex calculations. However many students did long calculations often ending up with obviously incorrect answers.

Many students could not specify that risk for the elevator operator was caused by the uncertain borrowing rate in September, nor could they put themselves in the position of the elevator operator to explain what the operator might logically do.

Q.8 Too many students did not use an adequate diagram to explain the relationship between portfolio risk and the number of assets in the portfolio.

Parts (c) and (d) were poorly done. Most students discussed only the relationship between return and risk predicted by the CAPM, not that between price and risk asked for in the question. Allowance was made in marking for this misinterpretation.

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ADVANCED FINANCE 526 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

- 10 Q.1
  - (4) (a) The major assets are vault cash, treasury bills and other liquid securities, loans (both personal and business), mortgages, and foreign loans and deposits. The major liabilities are a variety of chequable and term deposits by individuals and corporations, and similar foreign deposits. Some of these deposits are marketable.
  - (2) (b) A chartered bank is mismatching if it maintains assets with longer maturities than its liabilities.
  - (4) (c) Return is increased because short-term liabilities usually cost less than long-term.

Risk is increased because the cost of short-term liabilities can increase while return is fixed in long-term assets.

Liquidity decreases because funds cannot easily be released from long-term assets to meet commitments arising frequently from short-term liabilities.

- 9 Q.2
  - (3) (a) A seasoned primary offering is the primary offering of securities of a type which has been issued before. An initial primary offering is the primary offering of securities entirely new to the market.

A primary offering of any type is the sale of securities to investors for the first time.

(3) (b) The TSE is the Toronto Stock Exchange which runs a continuous auction of common and preferred shares, warrants, and rights using direct contact between the brokers of investors.

The OTC is the over-the-counter-market in shares. Dealers maintain this market by taking positions in stocks and dealing directly with customers.

(3) (c) The third market is used to describe over-the-counter trading of shares listed on an exchange. The term "fourth market" is used to describe the direct trading of securities between two parties with no broker intermediary. Both of these terms are more common in the United States than in Canada.

- 9 Q.3
  - (3) (a) The macroeconomic approach to aggregate stock market analysis is based upon the underlying relationship between the aggregate economy and the stock market. The analysis attempts to identify and predict leading indicators which are helpful in predicting market movements.
  - (6) (b) The efficient market hypothesis would maintain that all relevant economic information is quickly incorporated into stock prices. This would mean that no economic indicators would lead stock market activity to any usable degree. Rather, the stock market on average correctly anticipates economic activity. This would mean that the macroeconomic approach would be of little use to investors.
- 14 Q.4 To use the dividend valuation model, an analyst must forecast dividends over many periods and establish a suitable discount rate to find their present value.

To use the earnings multiple model, an analyst generally forecasts earnings one year out and estimates a price/earnings multiple which can be used to multiply earnings to get an estimate of price.

The dividend valuation model, because it is based on discounting cash flows, is theoretically sounder. It is also more flexible.

The earnings multiple model is simple and easy to communicate. As a result, its use is still widespread. The earnings multiple model is actually a form of discounted dividend model. In the constant dividend growth case of the discounted dividend model, the price earnings multiple is

$$M = \frac{D_1/E_1}{k - g}$$

Thus the earnings multiple model can be derived from the discounted dividend model, but not vice versa.

**NOTE:** 3 marks each for explaining the two models to a maximum of 6 marks. 2 marks for each point of comparison and contrast to a maximum of 8 marks.

10 Q.5  
(4) (a) 
$$1,000,000 - P = .12$$
 (45)  
 $P = 1,000,000 [1 + .12 (45)]^{-1}$   
(365)  
= \$985,421

The price of the treasury bill would be \$985,421.

(2) (b) 
$$y = 1,000,000 - 991,848 \times \frac{365}{30}$$

=.10 or 10%

The yield on an annual basis would be 10%.

Continued . . .

(4) (c) An investor could buy a bill at a yield of 12% with a maturity of 45 days. If the bill was held for 15 days and then had a lower market yield of 10%, which might happen because of a normal upward sloping yield curve, the investor would realize a capital gain of \$6,427 (= \$991.848 - \$985,421). This capital gain would come from "riding the yield curve".

16 Q.6

(6) (a) Assume that the bond has a face value of \$1,000.

$$D = \frac{\frac{60(1)}{(1+.07)} + \frac{60(2)}{(1+.07)^2} + \frac{60(3)}{(1+.07)^3} + \frac{1,060(4)}{(1+.07)^4}}{\frac{60}{(1+.07)} + \frac{60}{(1+.07)^2} + \frac{60}{(1+.07)^3} + \frac{1,060}{(1+.07)^4}}$$

= 3.67 six-month periods.

The duration of the bond would be 3.67/2 = 1.83 years.

(4) (b) If the coupon rate of the bond was decreased to 10%, the duration of the bond would increase because relatively less of the cash flow of the bond would be from early coupon interest, and more would be from the principal repayment.

NOTE: The student could answer the question by merely recalculating the duration:

$$D = \frac{\frac{50(1)}{(1+.07)} + \frac{50(2)}{(1+.07)^2} + \frac{50(3)}{(1+.07)^3} + \frac{1,050(4)}{(1+.07)^4}}{\frac{50}{(1+.07)} + \frac{50}{(1+.07)^2} + \frac{50}{(1+.07)^3} + \frac{1,050}{(1+.07)^4}}$$

= 3.71 six-month periods.

The new duration of the bond would be 3.71/2 = 1.85 years.

(6) (c) An active bond portfolio manager can use duration to increase return if he or she can anticipate interest rate changes. If it is anticipated that rates will go down, the duration of the portfolio can be increased through trading so that a larger increase in value is realized. To protect against an anticipated increase in rates, the duration of the portfolio can be decreased to minimize any decrease in value.

The passive bond portfolio manager can minimize the risk of not realizing the promised yield to maturity over any investment planning period by keeping the duration of the portfolio equal to the planning period.

16 Q.7

- (6) (a) To hedge the cost of the bank loan in September, the operator can short 91-day treasury bill futures for delivery in September. In September, if rates on treasury bills are up above 12%, the value of the futures contract will have dropped. He can then close out his futures position by buying the same kind of contract that he sold in June and in so doing make a gain which will offset the increased cost of his bank loan.
- (4) (b) If he does hedge, the effective cost on his three month bank loan will be approximately 12 + 2 = 14%, ignoring transaction costs.
- (6) (c) Whether or not the operator should hedge depends on his estimate of what 91-day treasury bill (or 3-month bank loan) rates will be in September. If he feels that the 91-day treasury bill rate will be above 12% in September, he should hedge. The operator might consider taking an expected loss by hedging (say if he expected September 91-day treasury bill rates to be at 12% or slightly below) in order to reduce his financing risk.

An important point is that the current 3-month bank loan rate is not relevant for the hedging decision. He is not going to borrow the money in June.

16 Q.8

(4) (a) Systematic risk is the part of variance of return due to the variability of return on the market. Unsystematic risk is that part of the variance of return which is not dependent on the market.

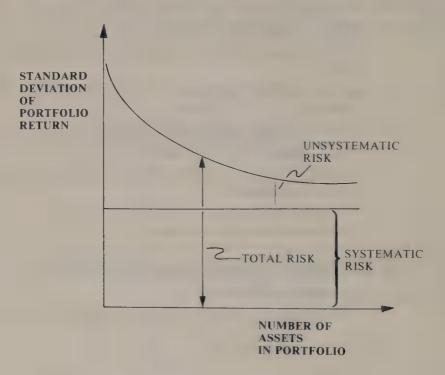
The easiest way to answer is to appeal to the characteristic line for some asset i:

$$R_{it} = \alpha_i + \beta_i \cdot R_{mt} + \epsilon_i$$

Then

$$Var(R_{it}) = \beta_i^2 Var(R_{mt}) + Var(\epsilon_i)$$
  
 $\beta_i^2 \cdot Var(R_{mt})$  is systematic risk.  
 $Var(\epsilon_i)$  is unsystematic risk.

(4) (b) The relationship is best outlined using a diagram:



(4) (c) Using the security market line

$$E(R_i) = RFR + \beta_i(R_m - RFR)$$
 and the expression

for expected holding period return

$$\frac{E(R_i)_{=}}{P_o} = \frac{E(P_1 + D_1) - P}{P_o} = \frac{E(P_1 + D_1)}{P_o} - I$$

one can see that as systematic risk represented by  $\beta_i$  increases,  $P_0$  decreases and vice versa. That is, the current price of an asset is inversely related to its systematic risk, all other factors held constant.

(4) (d) If investors can diversify, then only systematic risk is important to them. Securities which add systematic risk to portfolios are less in demand than securities with little systematic risk, and so their current prices are bid down.

100

**END OF SOLUTIONS** 

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### ADVANCED FINANCE 556 EXAMINATION December, 1984

Marks Time: 3 Hours

#### 45 Q.1 PLUG 'N ROLL

Having performed research related to a course on consumer behavior, J. C. Bouvier, a 1981 managerial sciences graduate at Bishop University, is planning to market a device that would be placed under the hood of an automobile. This device contains a wire which would be long enough to connect to a block-heater. His product would be marketed under the name of PLUG 'N ROLL.

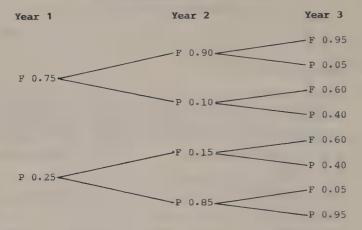
Bouvier would subcontract manufacturing of the product which he anticipates selling for \$50.00 per unit, with a 10% profit (before tax). This profit would be taxable at 27%, the rate applicable to small businesses. Although the life expectancy of the product could exceed 3 years, Bouvier has utilized a 3-year lifespan for his profitability analysis. He is of the opinion that, after 3 years, either the product will have met with success, which would generate so much competition that he would be forced to re-evaluate his presence in the market, or it will have failed, which would entail putting an end to the venture. This uncertainty connected with the new product led Bouvier to decide on a 3-year lifespan.

Bouvier is of the opinion that a favorable market response would generate sales of 10,000 units per year, whereas a poor market response would generate sales of only 2,000 units per year. A poor market response would be due mainly to the difficulty of installing the device under the hood: it may be necessary to have a mechanic install it, which would result in increased costs.

In his market study, Bouvier assessed the probability of both a favorable market response and a poor market response for each of the years involved. He took into account the fact that the anticipated results for the second year would depend on the results of the first year and the results of the third year would depend on those of the second year. Accordingly, he established the following decision tree for the project:

Continued...
Page 1 of 13

Probability of a favorable market response  $(\mathbf{F})$  or a poor market response  $(\mathbf{P})$  to the product:



Bouvier plans to finance his project with a \$20,000 loan and a personal investment of \$25,000. The loan would carry a rate of 15%, and Bouvier would require at least an 18% yield on his investment. At the time of this analysis, Canadian Treasury Bills were yielding 11%.

#### REQUIRED:

- (15) (a) Calculate the expected net present value and the standard deviation.
- (5) (b) Assuming a normal distribution for the events and knowing that Bouvier will not accept projects with a probability higher than 10% of being unprofitable, compute the probability of a negative NPV for the project.
- (10) (c) If the cash flows could be considered independent from one year to the next, how would this independence affect the risk of the project?
- (5) (d) Besides the PLUG 'N ROLL project, Bouvier is considering two other mutually exclusive projects having the following characteristics:

PROJECTS		A	п

Expected Net Present Value 25,000 23,000 Standard deviation of Net Present Value 25,500 19,700

What choice would you advise him to make, keeping in mind his selection criterion requiring a profitability probability greater than, or equal to, 10%?

(10) (e) If Project A has a correlation coefficient of 1.00 with the PLUG 'N ROLL project and Project B has a correlation coefficient of -0.90 with PLUG 'N ROLL, would your answer in (d) be affected? Why? (Show all your detailed calculations clearly.)

#### 40 Q.2 CARLING O'KEEFE LIMITED

Because of the rapid evolution of the company over the last few years, a group of shareholders ask you to assess the financing structure of Carling O'Keefe Ltd., as well as the weighted cost of its sources of funds.

#### REQUIRED:

(Consult the attached documents (on pages 5 to 9 inclusive) before answering questions (a) to  $(d) \cdot$ )

- (5) (a) From the point of view of an investor, rank by increasing order of anticipated risk the various securities used by Carling O'Keefe for its long term financing in March 1983. Justify your classification.
- (10) (b) Calculate the market value of \$1,000 nominal value for each of the following debentures: Series D, 5.5%, expiring on April 1, 1986 and Series E, 5.5%, expiring on April 1, 1989. Assume that your evaluation is made on April 2, 1983 and that the interest on these debentures is payable on an annual basis.

Explain the difference in price (value) of these two debentures.

- (15) (c) Calculate the weighted cost of capital of Carling O'Keefe Ltd., using book values as a base for weighting.
- (10) (d) Without necessarily making detailed computations, determine how your computation of the weighted cost of capital would be affected if you had used a weighting based on market values.

Continued...
Page 4 of 13



### CARLING O'KEEFE LIMITED

INCORPORATED UNDER THE LAWS OF DYTARIOL

#### CONSOLIDATED STATEMENT OF EARNINGS

IN THOUSANDS OF DOLLARSI

	YEA	R ENDED MARCE	1 31
	1983	1982	1981
INCOME			
Sales revenue	\$784,227	\$644,133	\$537,348
Investment and other income	5,554	6,251	7,566
	789,781	650,384	544,914
COSTS			
Production and sales taxes	274,443	221,154	178,159
Raw materials and manufacturing	235,367	206,399	176,049
Marketing and distribution	174,002	149,753	130,058
Administrative and general	34,500	27,332	23,948
Interest on long term debt	1,094	1,684	1.694
Other interest	903	2.558	1,404
Foreign exchange	863	3,770	1,068
Minority interest			113
,	721,172	612.650	512,493
EARNINGS BEFORE INCOME TAXES	68,609	37,734	32,421
Income taxes (Note 10)			
Current	27,142	8,385	7,671
Deferred	3,398	6,575	4.965
Dolottoa	30,540	14,960	12,636
EARNINGS FROM OPERATIONS	38,069	22.774	19,785
BEFORE EXTRAORDINARY ITEM	30,009	22,//4	10.705
Extraordinary item			
Gain on sale of trade marks \$13,300			
less income taxes \$2,800			10.500
(Note 3)		£ 22 774	\$ 30.285
EARNINGS FOR THE YEAR	\$ 38.069	<u>\$ 22,774</u>	9 30,200
EARNINGS PER COMMON SHARE FOR THE YEAR	4	0 (0.046)	e (2.062)
Preference share dividends	\$ (2,037)	\$ (2,046)	\$ (2.062)
Earnings for the year applicable			
to 21,762,295 common shares			0.00.000
outstanding	\$ 36,032	\$ 20,728	S 28.223
Before extraordinary item	\$1.65	95¢	820
Alter extraordinary item	\$1.65	95¢	\$1.30



#### CARLING O'KEEFE LIMITED

## CONSOLIDATED BALANCE SHEET

ASSETS	MAR	CH 31
	1983	1982
CURRENT ASSETS		
Cash and short term investments	\$ 32,553	\$ 5.952
Accounts receivable	47,876	48.583
Inventories (Note 4)	77,463	76.307
Prepaid expenses	5.389	4.401
Total current assets	163.281	_135,243
PROPERTY, PLANT AND EQUIPMENT (NOTE 5)	318,903	292.016
Less accumulated depreciation and depletion	131.153	118.167
	187,750	173.849
OTHER ASSETS (NOTE 6)	39,254	32.585
	\$390,285	\$341,677
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
Bank indebtedness and notes payable	\$ 918	\$ 17,144
Accounts payable and accrued liabilities	60,912	46,908
Income taxes	20,369	3.740
Other taxes	18.327	15,216
Dividends payable	2,030	1.599
Total current liabilities	102.556	84,607
LONG TERM LIABILITIES (NOTE 7)	9,435	12,437
DEFERRED INCOME TAXES	42.182	38.784
COMMITMENTS AND CONTINGENT LIABILITIES (NOTE 11)		
SHAREHOLDERS' EQUITY		
Capital stock (Note 9)		
Preference shares	42,020	42,270
Common shares	78,357	78.357
	120.377	120,627
Retained earnings	115,735	85.222
Total shareholders' equity	236,112	205.849
	\$390,285	\$341.677

APPROVED BY THE BOARD:

S. RODERICK McINNES, Director

LOUISE B. VAILLANCOURT, Director

#### 7. LONG TERM LIABILITIES

	1983	1982
Sinking fund debentures		
Series C 5% due January 15, 1983	\$ -	\$ 600,000
Series D 51/2% due April 1, 1986	2,396,000	3,200.000
Series E 51/2% due April 1, 1989	4,873,000	4,918,000
Term bank loan, due March 31, 1985	3.000,000	4,400,000
Obligations under capital leases	369,000	483,000
0511640000	10,638.000	13,601,000
Less amount included in current liabilities	2,894,000	2,895,000
	7,744,000	10.706.000
Unfunded pensions	_	981,000
Deferred revenue under gas contracts	1,691,000	750.000
	\$ 9,435,000	\$12.437.000

The term bank loan bears interest at the bank's prime rate and is repayable in varying instalments up to March 31, 1985.

Obligations under capital leases are disclosed in Note 11.

Principal payments on long term debt for the years 1984 through 1988 are as follows: 1984–\$2.894,000: 1985–\$2.817,000: 1986–\$1.927,000: 1987–\$1.000,000: 1988–\$1.000,000.

#### 8. PENSIONS

The Corporation and its subsidiaries maintain pension plans covering substantially all employees and generally fund pensions with independent trustees in accordance with legal requirements. Certain supplementary pensions are unfunded and charged to operations when paid. Based on recent independent actuarial valu-

ations, unfunded prior service obligations are estimated at \$6,900,000. The unrecorded unfunded amounts are being charged to operations generally over periods up to fifteen years, as described in Note 1. Total pension expense for the year ended March 31, 1983 was \$7,852,000 (1982–\$6,937,000: 1981–\$6,343,000).

9. CAPITAL STOCK	1983	1982
Authorized 840,407 preference shares with a par value of \$50 each, issuable in series 30,001,260 common shares without par value		
Issued 433,745 \$2.20 cumulative redeemable preference shares, Series A 406,662 \$2.65 cumulative redeemable	\$21,687,000	\$21,687,000
preference shares, Series B (1982—411,662)	20,333,000	20,583,000 \$42,270,000
21,762,295 common shares	\$78,357,000	\$78,357,000

The Series A and B preference shares are redeemable at the option of the Corporation at \$53.00 and \$52.50 per share respectively. During the year ended March 31, 1983, 5,000 Series B shares were purchased on the open market for cancellation (1982–5,125; 1981–5,000).

Rothmans Investments Limited, a wholly owned subsidiary of Rothmans of Pall Mall Canada Limited, is the owner of record of 50.1% of the Corporation's common shares.

Continued...

#### 10. INCOME TAXES

The difference between a basic income tax rate and the effective income tax rate based on income tax legislation is accounted for as follows:

	1983	1982	1981
Basic rate	50%	50%	50%
Income taxes at basic rate	\$34.304.000	\$18.867.000	\$16,211.000
Incentives	(3,361,000)	(2.626,000)	[2.560.000]
Alberta royalty tax credit	(2.712.000)	(2.063.000)	(755.000)
Rate difference on Irish earnings	(504.000)	(528.000)	(810.000)
United States oil and gas write down	2,450,000	-	-
Foreign exchange Other—net	438.000	1.456.000	603.000
	(75.000)	(146.000)	(53.000)
Income taxes-consolidated statement of earnings	\$30.540.000	\$14.960,000	\$12.636.000
Effective income tax rate	45%	40%	39%

Incentives include resource and depletion allowances net of royalties, inventory allowances, manufacturing and processing credits and investment tax credits.

Deferred income taxes primarily reflect timing differences between accounting and tax depreciation.

#### 11. COMMITMENTS AND CONTINGENT LIABILITIES

In the normal course of business, the Corporation has commitments including the cost of television rights, royalties payable under licensing agreements, purchase of agricultural products and capital expenditures.

Commitments under operating lease obligations relate to sports facilities, warehouses, retail stores and offices. Containers and equipment leased under capital leases are included in their respective asset categories and are depreciated accordingly. The following table summarizes the minimum rental payments due after March 31, 1983.

Year Ending March 31	 Capital Leases	Operating Leases	Total
1984 1985 1986 1987 1988 Thereafter to 1999 Total minimum rental payments Less imputed interest	\$ 142,000 170,000 128,000 	\$ 3,777,000 2,964,000 2,487,000 1,928,000 1,070,000 5,200,000 \$17,426,000	\$ 3,919,000 3,134,000 2,615,000 1,928,000 1,070,000 5,200,000 \$17,866,000
Obligations under capital leases	\$ 369,000		

There are a number of outstanding claims and legal actions involving the Corporation. In the opinion of counsel, the outcome of these matters should have no material effect on the Corporation's financial position.

# 12. INFORMATION PRESENTED IN ACCORDANCE WITH GENERALLY ACCEPTED ACCOUNTING PRINCIPLES IN THE UNITED STATES

The extraordinary item in 1981 would have been included in earnings before income taxes. Statement 52 of the Financial Accounting Standards Board in the United States requires that gains or losses arising on the translation of foreign currency financial statements at the current exchange rate should be treated as an adjustment to shareholders' equity.

#### ADDITIONAL INFORMATION (CARLING O'KEEFE LTD.)

Approximate yield on Canadian corporate bonds in March 1983	= 13%
Rate of return on Canadian government Treasury Bills (annual basis)	= 9.25%
Price of Carling O'Keefe common shares at the end of March 1983	= \$13.625
Price of preference shares, Series A, at the end of March 1983	= \$23.00
Price of preference shares, Series B, at the end of March 1983	= \$27.50
TSE 300 Index Yield during the last few years	= 10.5%
Systematic Risk (Beta) of Carling O'Keefe	= 1.68

#### 15 Q.3 LA VALLEE SKI CENTRE

Three professionals, whose annual income is well in excess of \$60,000 each, thus having a 60% marginal tax rate, are considering the acquisition of a ski centre for \$600,000. To accomplish this purchase, they intend to form a limited company in which each of them would hold 33 1/3% of the shares. Each of them can invest \$100,000, which means that \$300,000 would have to be borrowed at a rate of 10%. The ski centre would generate a taxable income of \$150,000 per year. The company could therefore qualify for small business status and have a tax rate of 25%. These three professionals have come to you, a public accountant, to get your advice.

#### REQUIRED:

- (10) (a) What would be the optimal capital structure for their enterprise?
- (5) (b) State the advantages and drawbacks of this capital structure.

100

END OF EXAMINATION

Present Value of \$1 
$$\frac{1}{(1+i)^2}$$

1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 12% 14% 15% 16% 18% 20% 24% 28% 32% 36% 40% 50% 60% 70% 80% 90% .893 .877 .870 .862 .847 .833 .806 .781 .758 .735 .714 .667 .962 .943 .935 .926 .917 .909 .743 .718 .694 .650 .610 .574 .541 .346 .309 .756 .980 .961 .943 925 .907 .890 .873 857 .842 .826 .797 .769 .751 .712 .675 .658 .641 .609 .579 .524 .477 .435 .398 .364 .296 .244 .204 .171 .146 .915 .889 .864 .840 .816 .794 .772 .329 .292 .198 .120 077 .572 .552 .516 .482 .423 .373 .735 .924 .889 .855 .823 .792 .763 .708 .683 .636 .592 .132 .095 .070 .053 .040 .863 822 784 .747 .713 681 .650 .621 .567 .519 .497 .437 .158 .021 .189 .133 .088 080 041 .029 .507 .432 .888 838 790 746 .705 .666 630 .596 .564 .037 .024 .016 .011 .583 .547 .513 .452 .400 .376 .354 .314 .279 .222 .178 .143 .116 .095 .059 711 665 623 933 871 813 760 .068 .039 .023 .014 .009 .006 .540 .502 .467 .404 .351 .327 .305 .266 .233 .179 .139 .108 .085 731 677 .627 .582 .923 .853 789 .015 .008 .005 .003 .500 .460 .424 .284 .263 .226 .194 .144 .108 .082 .063 .048 .026 .703 .645 .592 .544 .361 .308 914 837 .766 .116 .085 .062 .046 035 017 009 005 003 .558 .508 .422 10 905 820 744 676 614 .463 .003 .002 .012 006 11 12 13 094 066 .047 .034 .008 .004 .002 .001 .625 .557 .397 .356 .319 .257 .208 .187 .168 .137 .112 076 052 036 025 .018 .887 .788 .701 .497 .061 .040 .027 .018 .013 .005 .002 .530 .469 .415 .368 .326 .290 .229 .162 .163 .145 .116 .093 879 .773 .681 .601 .009 .000 .000 .049 .021 .014 14 .870 .758 .661 .577 .388 .340 .299 .263 .205 .160 .141 .125 .099 .078 .032 .000 .016 .010 .006 .002 040 .025 .183 .140 .123 .108 084 065 15 .071 .032 .019 16 458 .394 .339 .292 .252 .218 .163 .107 .093 .054 .009 .005 .003 .001 .000, 000, .060 .045 .026 .015 .371 .317 .270 .231 .198 .350 .296 .250 .212 .180 .093 .080 605 513 .436 .146 100 .021 .012 .007 .004 .002 .001 .000 .000 .130 .095 .081 .069 .051 .038 .836 .700 .587 .494 .416 .043 .070 .060 .031 .017 .009 .005 .003 002 .000 .000 19 .828 .686 570 475 396 331 .276 .232 .194 .164 .116 .083 .037 .026 .014 .007 .004 .002 .000, 100, 000 .061 .051 .554 .456 377 319 258 .215 .178 .149 .104 .073 .780 .610 .478 .375 .295 .233 .184 .146 .116 .092 .059 .038 .030 .024 .016 .010 .005 .002 .001 .000

.742 .552 .412 .308 .231 .174 .131 .099 .075 .057 .033 .020 .015 .012 .007 .004 .002 .001 .000 .000

																$\frac{1 - (1+i)^{-N}}{i}$			
									Present Worth of An Annuity of \$1							i			
Year	1%	2%	3%	4%	5%	5%	7%	8%	9%	10%	12%	14%	16%	18%	20%	21%	28%	32%	36%
1 € 41	2.00																		
1	0.990	0.980	0.971	0,962	0.952	0.943	0.935	0.926	0.917	0.909	0.893	0,877	0.862	0.847	0.833	0.806	0.781	0.758	0.735
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.690	1.647	1.605	1.566	1.528	1.457	1.392	1.332	1.276
3	2.941	2,884	2,829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.402	2.322	2.246	2.174	2.106	1.981	1.868	1.766	1.674
4	3.902	3.808	3.717	3,630	3.546	3.465	3.387	3,312	3.240	3,170	3.037	2.914	2.798	2.690	2.589	2.404	2.241	2.096	1.966
5	4,853	4,713	4.580	4.452	4.329	4.212	4,100	3.993	3,890	3.791	3,605	3.433	3.274	3.127	2.991	2.745	2.532	2.345	2.181
8	5.795	5.601	5.417	5.242	5,076	4.917	4.766			4.355		3.889	3,685	3.498	3.326	3.020	2.759	2.534	2.339
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389			4.868	4.564	4.288	4.039	3.812	3,605	3.242	2.937	2.678	2.455
8	7.652	7.325	7.020	6.733	6.463					5.335		4.639	4.344	4.078	3.837	3.421	3.076	2.786	2.5.10
9	8.566	8.162	7.786	7.435	7,108	6.802		6.247			5.328	4.946	4.607	4.303	4.031	3.566	3 184	2.868	2.603
10	9.471	8.983	8.530	8.111	7.722	7,360	7.024	6.710	6.418	6.145	5,650	5.216	4.833	4.494	4.193	3.682	3.269	2.930	2.650
																		0.000	2.02
11	10.368	9.787	9.253	8.760				7.139		5.495		5.453	5.029	4.656	4.327		3.335	2.978	2.683
12	11.255	10.575	9.954	9.385				7.536		6.814	6.194	5.660	5.197	4.793	4.439	3.851	3.387	3.013	2.727
13			10.635				8.358	7.904			6.424	5.842		4.910	4.533	3.912		3.040	2.740
14			11.296					8,244	7.786		6.628	6.002		5.008	4.611	3.962			2.750
15	13.865	12.849	11.938	11.118	10.380	9.712	9,108	8.559	8.060	7.606	6.811	6.142	5.575	5.092	4.675	4.001	3.483	3.076	2.750
															4 770	* 077	3.503	3.088	2.758
16							9.447				6.974		5.669		4.730	4.033	3.518	3.000	2.763
17							9,763					5.373	5.749		4,775	4.059		3.104	2.767
18			13.754					9,372			7.250	6.467	5.818	5.273	4.812	4.080	3.529	3.109	2.770
19			14.324					9.604			7.366	6.550	5.877	5.316	4.844		3.546	3,113	2.772
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9,128	8.514	7.469	6.623	5.929	5.353	4.870	4.110	3.240	2.113	2.112
														C 467	4 0 4 0	4 147	2 664	3.122	2 776
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9,823	9.077	7.843	6.873	6.097	5.467	4.948	4.147	3,304	3.122	2.770
												2000			4.070	4.100	3 560	3,124	2 778
30	25.808	22,397	19.600	17.292	15.373	13.765	12.409	11.258	10.274	9,427	8.055	7.003	6.177	5,51/	4.979	4.100	3.309	3.124	2.770

Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32:4	36%
														1.160	1.180	1.200	1.240	1 280	1,320	1,360
1	1.010	1.020	1 030	1.040	1.050	1.060	1.070	1.080	1.090	1.100	1.120	1.140	1.150	1.160	1.100	1 440	1.538	1 638	1.742	1 850
2	1 020	1.040	1 061	1,082	1.102	1.124	1,145	1.166	1.188	1.210	1.254	1.300	1.322		1.643	1.72B	1.907	2 067	2 300	2 5 1 5
3					1.158			1.260	1.295	1.331	1.405	1.482	1521	1.561	1.043	2 074	2.364	2 684	3 0 3 6	3 421
4	1 0:11	1.002	1.126	1,170	1,216	1.262	1.311	1.360	1.412	1.464	1.574	1.689	1.749	1.811	2 288	2 488	2.932	1 436	4 00 7	4.653
5					1.276			1.469	1.539	1.611	1.762	1.925	2.011	2.100	2.288	2.400	6.532	3.430		
													2212	2.436	2.700	2.986	3.635	4.398	5.290	6 3 2 8
6	1.062	1,126	1.194	1.265	1.340	1.419	1.501	1.587	1.677	1.772	1.974	2.195	2.313		3.185	3 583	4.508	5 629	6 983	8 605
7	1.072	1,149	1.230	1.316	1.407	1.504	1.606	1.714	1.828	1.949	2.211	2.502	2.650	2.826	3.759	4 300	5.590	7.206	9 217	11 703
8					1.477			1.851	1.993	2.144	2.476	2.853	3 059	3.278	4 4 3 5	5.160	6.931	9.223	12,166	15 917
9	1.094	1.195	1,305	1.423	1.551	1.689	1.838	1.999	2.172	2.358	2.773	3.252	3.518	3,803		6.192	8 594	11.806	16 060	21 647
10	1.105	1.219	1.344	1.480	1.629	1.791	1.967	2.159	2.367	2.594	3.106	3.707	4.046	4.411	5.234	0.192	0 324	11.000	.0.000	
														C 117	6.176	7.430	10.657	15.112	21 199	29 139
1.1					1.710			2.332	2.580	2.853	3 479	4.226	4.652		7 288	8 9 1 6	13 215	19 343	27 9813	40.037
12					1.796			2.518	2.813	3.138	3 896	4 818	5.350		8 500	10 609	16.386	24 759	36 937	54 451
13	1 138	1.294	1.469	1.665	1,886	2.133	2.410	2.720	3.066	3.452	4,363	5,492	6.153	6.886			20 319	31.691	48.757	24 053
14					1.980			2 9 3 7	3.342	3.797	4.887	6.261	7.07G	7.988	10.147	12 839 15 407	25 196	40 565	64 359	100.712
15	1.161	1.346	1.558	1.801	2.079	2.397	2.759	3.172	3.642	4.177	5.474	7.138	8.137	9.266	11.974	15 407	23.130	40 303	0.4 333	100.770
													0.250	10 740	14.129	18 488	31.243	51,923	84 954	136.97
16					2.183			3.426	3.970	4.595	6.130	8.137		10.748	16.672	22.186	38.741	66 461	112 14	186 28
17					2.292			3.700	4.328	5.054	6 866		10.761		19.673	26.623	48.039	85 071	148.02	253.34
18					2.407			3.996	4.717	5.560	7.690		12.375		23.214	31.948	59.568	108 89	195.39	344.54
19					2.527			4.316	5.142	6.116		12.056			27.393	38.338	73.864	139 38	257.92	468.57
20	1.220	1.486	1 806	2,191	2.653	3.207	3.870	4.661	5.604	6,728	9 640	13.743	16.367	13,401	27.393	30,330	73.004	137 30	237.32	
				2.555	2 200	4 202	E 427	6.848	8 673	10.835	17 000	26.462	12 919	10 874	62.669	95.196	216,542	478.9	1033.6	2180.1
25	1.282	1 041	2.094	2.000	3.386	4.292	3.427	9.040	0.023											
30	1.348	1.811	2.427	3.243	4.322	5.743	7.612	10.063	13.268	17.449	29.960	50 950	56.212	85.850	143.371	237.376	634.820	1645.5	4142.1	101430

(1+i)<sup>N</sup> -1

Sum of an annuity of \$1 for N years

Year	1%	2%	3%	4%	54	6%	7%	8%	9%	10%	12%	14%	16%	18%	20%	24%	28%	32%	36%
L	1.000	1.000	1.000	1.000	1,000	1.000	1.000	1.000	1.000	1,000	1.000	1.000	1,000	1.000	1.000	1.000	1 000	1 000	1 000
2	2.010	2 020	2.000	2.040	2 050	2.050	2.070	2.080	2.090	2,100	2,120	2,140	2.160	2.180	2.200	2.240	2.780	2.320	2,360
3	3.030	3.060	3.091	3.122	3.152	3.184	3.215	3.246	3.278	3.310	3.374	3,440	3.506	3.572	3.640	3.778	3.918	4 062	4.210
4	4.060	4 122	4.184	4.246	4.310	4.375	4.440	4,506	4,573	4 641	4,770	4.921	5,066	5,215	5,368	5.684	6.016	G 362	6.725
5	5.101	5,204	5.309	5.416	5.526	5.637	5.751	5.867	5,985	6.105	6.353	6.610	6.877	7,154	7.442	8.048	8.700	9.398	10.146
6	6.152	6.308	6.468	6.633	6.802	6.975	7.153	7,336	7,523	7,716	8.115	8 536	8.977	9,442	9.930	10,980	12.136	13 406	14 799
7	7 214	7.434	7.662	7.898	8.142	8.394	8.654	8.923	9.200	9.487	10.089	10,730	11,414	12,142	12,916	14.615	16.534	18 696	21.126
	8.286	8.583	8.892	9.214	9.549	9 897	10.260	10.637	11.028	11.436	12,300	13.233	14 240	15.327	16.499	19 123	22.163	25.678	1 29.732
	9 369	9.755	10.159	10.583	11.027	11.491	11.978	12.488	13 021	13.579	14.776	16.085	17.518	19.086	20 799	21.712	29 369	34 895	41.435
10	10 462	10 950	11.464	12 006	12.578	13 181	13816	14.487	15.193	15.937	17.549	19 337	21.321	23.521	25.959	31.643	38 592	47 062	57.352
11	11.567	12.169	12 808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	20 655	23.044	25.733	28.755	32.150	40.238	50.399	63.122	78.998
12						16.870		18.977	20.141	21.384	24.133	. 27.271	30.850	34.931	39.580	50.985	65.510	84.320	108 437
13	13809	14 680	15 618	16.627	17.713	18 882	20.141	21.495	22.953	24.523	28 029	32,009	36.786	42.219	48 497	64 110	84 853	112.303	148 475
14	14 947	15 974	17.086	18 292	19.599	21.051	22.550	24.215	26.019	27.975	32.393	37.581	43.672	50.818	59.196	80,496	109 612	149 240	202,926
15	16 097	17.293	18 590	20.024	21.579	23.276	25.129	27.152	29.361	31,772	37,280	43.842	51.660	60.965	72.035	100.815	141,303	197.997	276.979
16	17.258	18 539	20.157	21.825	23.657	15.673	27.888	30.324	33.003	35,950	42,753	50.980	60.925	72,939	87,442	126.011	181.87	262.36	377.69
17	18 430	20 012	21.762	23.698	25 840	28.213	30 840	33,750	36.974	40,545	48 884	59.118	71.673	87.068	105.931	157,253	233.79	347 31	514 66
18						30.90€		37.450	41.301	45,599	55.750	68.394	84.141	103.740	128.117	195.994	300 25	459 45	700.94
19						33,760		41,446	46.018	51.159	63,440	78.969	98 603	123,414	154,740	244.033	385 32	607.47	954 28
50	55 01 9	24.297	26.870	29.778	33.066	36 786	40.995	45.762	51,160	57.275	72.052	91.025	115.380	146.628	186.688	303.601	494.21	802 86	1298 8
25 9	28 243	32.030	36.459	41.615	17,727	54 865	63.249	73.106	84.701	98.347	133.334	181.871	249.214	342.603	471,981	898.092	1706.8	3226.8	6053 0
30	34.785	40.568	47.575	56.085	96 439	79.058	94.461	113.283	136.308	164 494	241.333	356.787	530.312	790.948	1181.882	2640.916	5873 2	12941.0	28172.0

#### TABLE OF NORMAL DISTRIBUTION

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0 0.1 0.2 0.3 0.4 0.5	.0000 .0398 .0793 .1179 .1554 .1915	.0040 .0438 .0832 .1217 .1591 .1950	.0080 .0478 .0871 .1255 .1628 .1985	.0120 .0517 .0910 .1293 .1664 .2019	.0160 .0557 .0948 .1331 .1700 .2054	.0199 .0596 .0987 .1368 .1736	.0239 .0636 .1026 .1406 .1772 .2123	.0279 .0675 .1064 .1443 .1808 .2157	.0319 .0714 .1103 .1480 .1844 .2190	.0359 .0753 .1141 .1517 .1879 .2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4032	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4938	.4988	.4989	.4989	.4989	.4990	.4990

#### CERTIFIED COLUMN ACCOUNTANTS ASSOCIATION OF CAMADA

# December, 1984 KXAMINER'S COMMENTS

#### **General**

Overall performance was rather poor. Students did not appear to have adequate knowledge of Lesson Note material.

#### Specific

- Q.1 Close to 80% of students were unable to work with statistics. Question 1, which was similar to one of the problems in Lesson 4, was very poorly answered. Students did not know how to treat joint probabilities, calculate a standard deviation, or use a table of normal distribution. Most students did not use the risk-free rate to discount cash flows, and many did not understand the meaning of correlation coefficient.
- Q.2 Students did fairly well on this question. The main problem was confusion between the valuation of the cost of individual sources of funds using market values and the weighting of those costs based on market values.
- $Q \cdot 3$  The most common error was to discuss only the net income (NI) and net operating income (NOI) approach without considering the impact of corporate and personal taxes on the decision. Very few students gave a complete analysis.

## CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA ADVANCED FINANCE 556 EXAMINATION

#### December, 1984

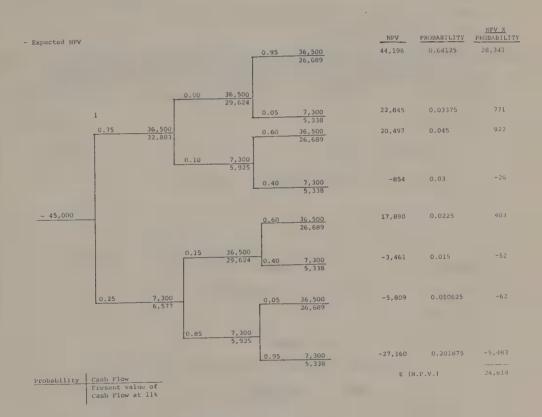
#### SUGGESTED SOLUTIONS

<u>IARKS</u>

45

Q.1 PLUG'N ROLL

(15) (a) - Expected Net Present Value (NPV)



TIME: 3 HOUF

- Standard deviation of NPV

$$\sigma^{2} \text{ (NPV)} = [(44,196 - 24,814)^{2} \times 0.64125]$$

$$+ [(22,845 - 24,814)^{2} \times 0.03375]$$

$$+ [(20,497 - 24,814)^{2} \times 0.045]$$

$$+ [(-854 - 24,814)^{2} \times 0.03]$$

$$+ [(17,890 - 24,814)^{2} \times 0.0225]$$

$$+ [(-3,461 - 24,814)^{2} \times 0.015]$$

$$+ [(-5,809 - 24,814)^{2} \times 0.010625]$$

$$+ [(-27,160 - 24,814)^{2} \times 0.201875]$$

$$\sigma$$
 (N.P.V.) = 28,810

(5) (b) 
$$z = \frac{0 - 24,814}{28,810} = -0.86$$

The probability of having a negative NPV is 19.5%. Therefore, Bouvier should refuse the project.

- (10) (c) Independent cash flows would result in a reduction of the standard deviation of N.P.V. Thus, the probability of having a negative N.P.V. would be reduced and the risk associated with the project would also diminish.
- (5) (d) Project A

$$z = \frac{0 - 25,000}{25,500} = -0.98$$

Thus, a 16.4% probability of having a negative NPV.

Project B

$$z = \frac{0 - 23,000}{19,700} = -1.17$$

Thus, a 12.1% probability of having a negative MPV.

(10) (e) The combination of Project A and PLUG'N ROLL would give:

E (NPV) = 24,814 + 25,000 = 49,814  

$$\sigma^{2} \text{ (NPV)} = \sigma_{1}^{2} + \sigma_{2}^{2} + 2\rho \text{ (1,2)} \sigma_{1} \sigma_{2}$$

$$= 28,810^{2} + 25,500^{2} + (2 \times 28,810 \times 25,500)$$

$$= 829,986,962 + 650,250,000 + 1,469,300,000$$

$$\sigma \text{ (NPV)} = 54,310$$

$$z = \frac{0 - 49,814}{54,310} = -0.92$$

This gives a 17.9% probability of having a negative NPV.

The combination of Project B with PLUG'N ROLL would give:

E (NPV) = 24,814 + 23,000 = 47,814  

$$\sigma^{2} (\text{NPV}) = 28,810^{2} + 19,700^{2} + ((-0.9) \times 2 \times 28,810 \times 19,700)$$

$$= 829,986,962 + 388,090,000 - 1,021,600,000$$

$$\sigma (\text{NPV}) = 14,017$$

$$z = \frac{0 - 47,814}{14,017} = -3.41$$

The probability of having a negative NPV would be negligible. The combination of project B and PLUG'N ROLL would therefore be acceptable, since diversifying risks reduces the total risk of the projects, when taken together.

#### Q.2 CARLING O'KEEFE LIMITED

(5) (a) 1) Debentures 2) Preference shares 3) Common shares

Here, we are taking the investor's viewpoint. Debentures pay interest but the company could go bankrupt if the interest were not paid. Preference shares pay dividends which can be omitted if no dividends are paid on common shares. Common shareholders are only entitled to residual income, after payment of interest and dividends.

(10) (b) Series D 5.5% April 1, 1986

Price = 55 
$$\frac{1 - (1+0.13)^{-3}}{0.13} + \frac{1,000}{(1+0.13)^3}$$

Series E 5.5% April 1, 1989

Price = 55 
$$\frac{1 - (1+0.13)^{-6}}{0.13} + \frac{1,000}{(1+0.13)^{6}}$$

The Series E debentures are more sensitive to interest rate fluctuations as their maturity is longer while all the other elements are identical for both series.

- (15) (c) Here, the assumption has been made that cost before tax of long term liabilities is 13% and that the cost of current liabilities and deferred income tax is equal to the weighted cost of capital. This assumption uses the same theoretical basis that leads us to consider the cost of depreciation as being the same as the weighted cost of capital. Consequently, the weighting used will not take current debt into account.
  - 1) Cost of debt:

Cost of debt after tax = 
$$K_D$$
  
 $K_D$  = 13% (1 - 0.45) = 7.15%

For 0.45, see note 10 of the financial statements.

2) Preference shares:

Cost of preference shares =  $K_p$ 

Series A: 
$$\frac{2.20}{23.00} = 9.57\%$$

Series B: 
$$\frac{2.65}{27.50} = 9.64\%$$

Weighting of cost of preference shares:

$$K_{p} = \left(9.57 \times \frac{21,687}{42,020}\right) + \left(9.64 \times \frac{20,333}{42,020}\right)$$

$$K_{p} = 4.94 + 4.67 = 9.61$$

3) Common shares:

In this instance, all the necessary information is available to use the market model.

$$K_S = R_F + B (R_M - R_F)$$

$$R_{\rm F} = 0.0925$$

$$R_{M} = 0.1050$$

$$K_S = 0.0925 + 1.68 (0.1050 - 0.0925)$$

$$K_{S} = 0.0925 + 0.021 = 0.1135$$

#### 4) Weighted cost of capital

SOURCE	COST	WEIGHTING	WEIGHTING COST
Debt	0.0715	9,435 245,547	0.0028
Preference Shares	0.0961	$\frac{42,020}{245,547}$	0.0165
Common Shares	0.1135	194,092 245,547	0.0897

Weighted Cost of Capital = 10.9%

(10) (d) The market value of the debt would be lower than its book value, as the market interest rates are higher than the coupon rates of the debentures.

The market value of the common shares would increase in relation to their book value, as the price of the common shares is higher that their book value.

The result of these changes would be a higher weighting for the more costly sources of funds and hence, an increase in the weighted cost of capital. However, this increase would be small, due to the relatively small amount of debt in the financial structure.

(NOTE: Other assumptions would be acceptable for weighting.)

#### 0.3 LA VALLEE SKI CENTRE

(10) (a) We could discuss the theoretical basis to the effect that the net income (NI) approach would favor a capital structure based on 100% debt whereas, under the net operating income (NOI) or M-M approach, the debt level has no effect on the value of the company. However, that discussion is not necessary if we go directly to the heart of the problem, i.e., the choice between corporate and personal leverage.

The following equation can be used to determine whether it is beneficial to borrow for Company A:

$$A = Kd B (1 - TpB) - (1 - Tc) (1 - Tps)$$

Kd Interest rate

B Debt

TpB Personal tax rate on interest income

Tc Corporate tax rate

Tps Tax rate on share income

If we use the above equation, we will have to make assumptions about the Tps. Is it 60%? Is it 60% divided by 2 to take capital gains into account? Is it 60% adjusted to take dividend income into account?

We could also directly compare the two alternatives by assuming that amounts paid to shareholders are dividends, which would be the most logical choice regarding the type of income paid to shareholders. Therefore, shareholders could deduct the interest expense incurred to purchase the shares from the dividends received. Assuming that the dividend tax credit is approximately equal to the dividend gross-up, we would have the following:

	SKI CENTRE BORROWS	SHAREHOLDERS BORROW
Income of the centre Interest	150 000 30 000	150 000
Taxable income of the centre Income tax (.25)	120 000 30 000	150 000 37 500
Net income	90 000	112 500
Grossed up dividend Interest	135 000	168 750 30 000
Taxable dividend	135 000	138 750
Income tax (.60) Less: Tax credit	81 000 45 000	83 250 56 250
Tax payable	36 000	27 000
Net income	54 000	85 500

 $\underline{\underline{\text{NOTE}}}\colon$  It is assumed that the standard investment income deduction of \$1,000 has already been used.

It would therefore be more beneficial for the shareholders to borrow personally and buy the shares of their company. If we did not take into account the dividend-related benefit, however, we would select the opposite alternative.

- (5) (b) Given the assumptions made in (a) as to the taxation of shareholders' income, we can conclude that the optimal structure is either 100% common shares or 50% common shares and 50% debt. Here is a general overview of advantages and disadvantages of those alternatives.
  - (b.1) 100% common shares

#### Advantages

- Maximizes shareholders' return
- Does not affect the company's borrowing capacity

#### Disadvantage

- The shareholders are personally liable for the loan.

#### (b.2) 50% common shares, 50% debt

#### Advantages

- Maximizes shareholders' return
- The borrowing risk is supported by the company

#### Disadvantages

- The leverage effect increases the risk of the company
- The company's borrowing capacity is used.

100

END OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF CHARGE

## FINANCE 556 EXAMINATION June, 1985

Marks Time: 3 Hours

#### 40 Q. 1 DEAL INC.

Last January, the directors of Gesfin Inc., a holding company, authorized Mr. Tremblay, their Vice-President, Finance, to investigate various ways of financing the takeover of Opal Inc., a small high technology company. Gesfin had been set up for the sole purpose of acquiring Opal.

Opal's financial structure is made up of common stock only. The owner of the firm is willing to make over the full amount of stock in exchange for a cash payment of \$5 million and his continued chairmanship of Opal for a further five years. Opal's tax rate is 48% and in the foreseeable future it is anticipated that the annual cash flow and the attendant subjective probabilities will be as follows:

Annual cash flow (Earning before interest and taxes)

\$700,000 \$900,000 \$1,500,000 \$2,000,000 \$2,500,000

Probability:

0.10 0.20 0.40 0.20 0.10

The financing strategies considered by Mr. Tremblay are:

- (1) Purchasing the full amount of Opal's common stock, using Gesfin's liquid assets to the amount of \$2.5 million and borrowing the other \$2.5 million at 14%. This type of financing would not change the financial structure of Opal.
- (2) Purchasing one half of Opal's common stock using Gesfin's liquid assets and having Opal take out a loan of \$2.5 million at 14% to repurchase the other half. This, of course, would change Opal Inc.'s financial structure.

Continued...
Page 1 of 10

#### REQUIRED:

Analyse the two alternatives by answering the following questions:

- (10) (a) What would be the expected return on common shareholders' equity, and what would be its standard deviation and coefficient of variation:
  - (5) if financial leverage is not used?
  - (5) ii) if Opal takes on debt?
- (5) (b) Interpret the calculations you have made in part (a) above, in order to determine the risk for Opal Inc. in adopting each alternative.
- (10) (c) What effect would the use of preferred stock rather than borrowing have on Opal's risk and its rate of return. (Assuming a dividend rate of 14%.)
- (15) (d) Assuming that Gesfin has a tax rate of 48% and can borrow at the same interest rate as Opal, would it be more advantageous if Gesfin were to do the borrowing rather than Opal? Why?

#### 30 Q. 2 SAINT-LAWRENCE

The Saint-Lawrence Company was established in the 1950s. From its inception and until quite recently, there has been a fairly small-scale approach to management of this firm. For example, Mr. Glen Cane, the owner-founder of the firm arranged for his production level to coincide with his sales cycle. The firm, which manufactures women's clothing, has two annual sales cycles, one which peaks in April and May, the other in November.

In 1981, Mr. Cane retired and handed over the management of the firm to Mrs. Cash. At that point the business was having quality control problems with its product. What was happening was that the seasonal variation in production levels resulted in sharp fluctuations in the quality of obtainable labor. To solve this problem, Mrs. Cash decided to establish a stable year-round production level and negotiated a million-dollar credit line with her bank. However, the agreement with the bank stipulated that at the end of each sales cycle, i.e. in June and in December, all credit advances should be zero.

Mrs. Cash fully intended to be more dynamic than Mr. Cane and to ensure, for practically the first time, the growth of the company.

Between 1982 and 1984, Saint-Lawrence's assets almost doubled and Mrs. Cash asked for a credit-line increase of \$500,000. She anticipated a 10% incease in sales for 1985.

Continued...
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E556J85

# THE SAINT-LAWRENCE THAT LTD. STATEMENT OF INCOME Year In d December 31 (In \$ thousands)

	1982	1983	1984
Sales	\$9,750	\$10,130	\$10,200
Cost of goods sold	7,940	8,150	8,240
Gross margin	\$1,810	\$ 1,980	\$ 1,960
Selling and administrative			
expenses	750	800	830
Depreciation	80	90	130
Interest	80	80	90
Other	150	200	240
Total expenses	\$1,060	\$ 1,170	\$ 1,290
Net income before tax	750	810	670
Income tax	375		
Net income	s 375	405	335
Net Income	\$ 3/5	\$ 405	\$ 335

# SAINT-LAWRENCE CLAUSET LTD. BALANCE SHEET December 31 (In \$ thousands)

Current assets:	1982	1983	1984
Cash	\$ 220	\$ 140	\$ 120
Accounts receivable	900	1,000	1,300
Inventories	1,050 2,170	1,800	3,000
Fixed assets:			-,
Land and buildings	240	400	700
Equipment	540	590	770
Other	15	8	1
	\$2,965	\$3,938	\$5,891
Current liabilities:			
Current liabilities: Bank loans	\$ <del>-</del>	\$ 390	\$ 980
	\$ <del>_</del>	\$ 390 900	\$ 980 1,850
Bank loans			7 300
Bank loans Accounts payable	600	900	1,850
Bank loans Accounts payable	600 180	900 223	1,850
Bank loans Accounts payable Revenue received in advance  Mortgage Shareholders' equity Capital stock	600 180 780	900 223 1,513	1,850 316 3,146
Bank loans Accounts payable Revenue received in advance  Mortgage Shareholders' equity	180 780	900 223 1,513	1,850 316 3,146

Continued...
Page 3 of 10

## Principal Competitors of Saint-Lawrence Company Ltd: Average ratios and standard deviations

1982	1983	1984
2.4	2.4	2.4
(0.1)	(0.1)	(0.1)
1.5	1.5	1.4
(0.1)	(0.1)	(0.1)
3.0	3.0	3.1
(0.15)	(0.1)	(0.2)
14	14	14
(0.2)	(0.1)	(0.1)
7	6	7
(0.1)	(0.2)	(0.15)
30	30	30
(0.2)	(0.1)	(0.1)
0.035	0.040	0.037
(0.005)	(0.007)	(0.007)
0.11	0.12	0.12
(0.01)	(0.01)	(0.015)
0.21	0.24	0.23
(0.015)	(0.01)	(0.01)
0.50	0.50	0.50
(0.035)	(0.045)	(0.050)
9	9	9
(1.0)	(0.75)	(0.5)
	2.4 (0.1) 1.5 (0.1) 3.0 (0.15) 14 (0.2) 7 (0.1) 30 (0.2) 0.035 (0.005) 0.11 (0.015) 0.21 (0.015) 0.50 (0.035)	2.4 (0.1) (0.1)  1.5 (0.1) (0.1)  3.0 (0.15) (0.1)  14 (14 (0.2) (0.1)  7 6 (0.1) (0.2)  30 (0.2) (0.1)  0.035 (0.040 (0.005) (0.007)  0.11 (0.12 (0.01)  0.21 (0.01)  0.21 (0.01)  0.50 (0.035) (0.045)

Continued...
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#### SAINT-LAWRENCE COMPANY'S RATIOS

	1982	1983	1984
Current assets/Current liabilities	2.8	1.9	1.4
(Current assets-inventories)/Current liabilities	1.4	0.8	0.5
Sales/Assets	3.3	2.6	1.7
Sales/Fixed assets	12.3	10.2	6.9
Sales/Inventories	9.3	5.6	3.4
Accounts receivable/(Sales/365)	34	36	47
Net income/Sales	0.039	0.04	0.033
Net income/Assets	0.13	0.10	0.06
Net income/Net worth	0.19	0.18	0.13
Liabilities/Assets	0.32	0.43	0.56
Earnings before interest and tax/Interest	10.4	11.1	8.4

#### REQUIRED:

- (20) (a) Decompose and evaluate Saint-Lawrence's profitability, and analyze its financial position.
- (5) (b) Which of its financial management problems require short-term solutions and how could they be solved?
- (5) (c) What further analyses would you carry out before deciding whether or not to allow the extra \$500,000 requested?

#### 30 Q.3 LATOUCHE

Roger Latouche has been a trailer-truck driver for more than thirty years; now he is seriously considering quitting the trucking industry for a more sedentary line of work. A bachelor aged 53, Latouche has put aside enough money to ensure a comfortable retirement. However, he still cherishes a childhood ambition to own a grocery store.

Now he has the opportunity of realizing that ambition. While Latouche was making a delivery to an independent grocery in a small town in the Eastern Townships, the store-owner, Paul Smith, told him he was thinking of selling. When Smith saw that the truck driver was interested, he showed him his income statement for 1984 and gave him a list of his fixed and variable expenses for the same year.

Roger Latouhe understood from the discussion that Paul Smith was expecting to sell his grocery for \$450,000.

TABLE 1

## SMITH GROCERY LTD. STATEMENT OF 1984

Sales	\$1,250,000
Cost of goods sold	1,147,100
Gross margin	102,900
Expenses:	
Selling	10,400
Administrative	44,100
Income from operations	48,400
Interest	4,200
Net income before tax	44,200
Income tax	11,500
Net income	32,700

# SMITH GROCERY LTD. SALES AND OPERATING EXPENSES 1984

(1)	Sales	\$1,250,000
(2)	Fixed expenses  Depreciation of automotive equipment Depreciation of other equipment Depreciation of building Insurance Heating and lighting Taxes, licences, permits Advertising Interest Bookkeeping Owner's salary	\$ 4,500 2,500 2,100 3,100 5,700 4,100 5,300 4,200 1,900 35,000 \$ 68,400
(3)	Variable expenses Wages Maintenance and repairs Packaging Entertainment Purchase of goods	62,300 13,100 5,600 600 1,055,800 \$1,137,400

#### REQUIRED:

- (10) (a) Mr. Latouche requires you to help him make an investment decision regarding the purchase of Mr. Smith's grocery by supplying him with the following informaton: (All calculations should be shown.)
  - (3) i) the break-even point.
  - (3) ii) the minimum sales level required to cover all disbursements.
  - (4) iii) a risk analysis with regard to the grocery's present level of fixed expenses.
- (20) (b) Mr. Latouche plans to sell the grocery and retire in 10 years. What should the minimum resale price be in 10 years if the investment is to be worthwhile?

Continued...
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#### ADDITIONAL INFORMATION

(1) The present value of tax credits to offset depreciation of new assets is calculated as follows:

$$\left(\frac{C \ d \ T}{K + d}\right) \quad \left(\frac{1 + K/2}{1 + K}\right)$$

where

C = increase in the undepreciated balance in the class of the depreciable asset

d = diminishing balance depreciation rate

T = tax rate

K = appropriate discount rate

(2) Statement of Smith Grocery assets:

Class	Balance	Maximum diminishing balance rate
Building Automotive	\$75,000	5%
equipment	12,000	30%
Equipment	18,000	20%

(3) A recent article in a financial journal discussed the viewpoints of a number of well-known economists regarding the present state and future prospects of the Canadian economy. Amongst other things, the article mentioned that the current yield on federal government bonds was 12%, which included an inflation premium estimated at 6%.

Following a discussion with expert analysts in the retail food business sector, you come to the conclusion that inflation-based cost increases are completely covered within the sales and costs structure, and thus the profits are effectively indexed to take inflation into account. Moreover, these same experts appear to consider that a 5% risk premium, as compared to a risk free rate, is normal for the food business sector.

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OF EXAMINATION

Table A.1 Present Value of \$1

(1+i)<sup>N</sup>

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	9901	9804	9709	9615	9524	9434	9346	9259	9174	9091	8929	8772	8696	8621	8475	8333	8065	7813	7576	7353
2	9803	9612	9426	9246	9070	8900	8734	8573	8417	8264	7972	7695	7561	7432	7182	6944	6504	6104	5739	5407
3	9706	9423	9151	8890	8638	8396	8163	7938	7722	7513	7118	6750	6575	6407	6086	5787	5245	4768	4348	3975
4	9610	9238	8885	8548	8227	7921	7629	7350	7084	6830	6355	5921	5718	5523	5158	4823	4230	3725	3294	.2923
5	9515	9057	8626	8219	7835	7473	7130	6806	6499	6209	5674	5194	4972	4761	4371	4019	3411	.2910	.2495	2149
6	9420	8880	8375	7903	7462	7050	6663	6302	5963	5645	5066	4556	4323	4104	3704	3349	2751	2274	1890	1580
7	9327	8706	8131	7599	7107	6651	6227	5835	5470	5132	4523	3996	3759	3538	3139	2791	2218	1776	1432	1162
8	9235	8535	7894	7307	6768	6274	5820	5403	5019	4665	4039	3506	3269	3050	2660	2326	1789	1388	1085	0854
9	9143	8368	7664	7026	6446	5919	5439	5002	4604	4241	3606	3075	2843	2630	2255	1938	1443	1084	0822	0628
10	9053	8203	7441	6756	6139	5584	5083	4632	4224	3855	3220	2697	2472	2267	1911	1615	1164	0847	0623	.0462
11	8963	8043	7224	6496	5847	5268	4751	4289	3875	3505	2875	2366	2149	1954	1619	1346	0938	0662	0472	0340
12	8874	7885	7014	6246	5568	4970	4440	3971	3555	3186	2567	2076	1869	1685	1372	1122	0757	0517	0357	0250
13	8787	7730	6810	6006	5303	4688	4150	3677	3262	2897	2292	- 1821	1625	1452	1163	0935	0610	0404	0357	0184
14	8700	7579	6611	5775	5051	4423	3878	3405	2992	2633	2046	1597	1413	1252	0985	0779	0492	0316	0205	0135
15	8613	7430	6419	5553	4810	4173	3624	3152	2745	2394	1827	1401	1229	1079	0835	0649	0397	0247	0155	0099
16	8528	7284	6232	5339	4581	3936	3387	2919	2519	2176	1631	1229	1069	0930	0708	0541	0320	0193	0118	.0073
17	8444	7142	6050	5134	4363	3714	3166	2703	2311	1978	1456	1078	0929	0802	0600	0451	0258	0150	0089	0054
18	8360	7002	5874	4936	4155	3503	2959	2502	2120	1799	1300	0946	0808	0691	0508	0376	0208	0118	0068	0039
19	8277	6864	5703	4746	3957	3305	2765	2317	1945	1635	1167	0829	0703	0596	0431	0313	0168	0092	0051	0029
20	8195	6730	5537	4564	3769	3118	2584	2145	1784	1486	1037	0728	0611	0514	0365	0261	0135	0072	0039	0021
25	7798	6095	4776	3751	2953	2330	1842	1460	1160	0923	0588	0378	0304	0245	0160	0106	0046	000+	2010	
30	7419	5521	4120	3083	2314	1741	1314	0994	0754	0573	0334	0196	0151	0116	0070	0105	0046	0021	0010	.0005
40	6717	4529	3066	2083	1420	0972	0668	0460	0318	0221	0107	0053	0037	0026	0013	0007		0006	0002	.0001
50	6080	3715	2281	1407	0872	0543	0339	0213	0134	0085	0035	0014	0009	0006	0003		0002	0001		
60	5504	3048	1697	0951	0535	0303	0173	0099	0057	0033	0011	0004	0003	0000	•	0001				

Table A.2 Present Value of an Annuity of \$1 Per Period for n Periods

$$\frac{1 - (1+i)^{-N}}{i}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%					
1	0 9901	0 9804	0 9709	0.9615	0 9524	0 9434	0.9346	0 9259				14.76	1576	16%	18%	20%	24%	28%	32%
2	1 9704	1 9416	1 9135	1 8861	1 8594	1 8334	1 8080	1 7833	0 9174		0 8923	0 8772	0 8696	0 8621	0 8475	0 8333	0 8065	0 7813	0 7576
3	2 9410	2 8839	2 8286	2 7751	2 7232	2 6730	2 6243	2 5771	1 7591		1 6901	1 6467	1 6257	1 6052	1 5656	1 5278	1 4568	1 3916	1 3315
4	3 9020	3 8077	3 7171	3 6299	3 5460	3 4651	3 3872	3 3121	2 5313		2 4018	2 3216	2 2832	2 2459	2 1743	2 1065	1 9813	1 8684	1 7663
5	4 8534	4 7135	4 5797	4 4518	4 3295	4 2124	4 1002	3 9927	3 2397 3 8897		3 0373 3 6048	2 9137 3 4331	2 8550 3 3522	2 7982	2 6901	2 5887 2 9906	2 4043	2 2410 2 5320	2 0957
6	5 7955	5 6014	5 4 1 7 2	5 2421	5 0757	4 9173	4.3000									2 3300	7 /434	2 3320	2 3452
7	6 7282	6 4720	6 2303	6 0021	5 7864	5 5824	4 7665 5 3893	4 6229	4 4859		4 1114	3 8887	3 7845	3 6847	3 4976	3 3255	3 0205	2 7594	2 5342
	7 6517	7 3255	7 0197	6.7327	6 4632	6 2098	5 9713	5 2064	5 0330		4 5638	4 2883	4 1604	4 0386	3 8115	3 6046	3 2423	2 9370	2 6775
9	8 5660	8 1622	7 7861	7 4353	7 107B	6 8017	6 5152	5 7466	5 5348		4 9676	4 6389	4 4873	4 3436	4 0776	3 8372	3 4212	3 0758	2 7860
10	9 4713	8 9826	8 5302	8 1109	7 7217	7 3601	7 0236	■ 2469	5 9952		5 3282	4 9464	4 7716	4 6065	4 3030	4 0310	3 5655	3 1842	2 8681
					. 1211	, 2001	/ 0236	6 7101	6 4 1 7 7	6 1446	5 6502	5 2 1 6 1	5 0188	4 8332	4 4941	4 1925	3 6819	3 2689	2 9304
11	10 3676	9 7868	9 2526	8 7605	8 3064	7 8869	7 4987	7 1390	6 8052	6 405 1	C 0022								
12	11 2551	10 5753	9 9540	9 3851	8 8633	8 3838	7 9427	7 5361	7 1607		5 9377		5 2337			4 3271	3 7757	3 3351	2 9776
13	12 1337	11 3484	10 6350	9 9856	9 3936	8 8527	8 3577	7 9038	7 4869	7 1034		5 6603	5 4206	5 1971	4 7932	4 4392	3 8514	3 3868	3 0133
14	13 0037	12 1062	11 2961	10 5631	9 8986	9 2950	8 7455	8 2442	7 7862	7 3667	6 4235 6 6282	5 8424	5 5831	5 3423	4 9095	4 5327	3 9124	3 4272	3 0404
15	13 8651	12 8493	11 9379	11 1184	10 3797	9 7122	9 1079	8 5595	8 0607		6 8109	6 0021	5 7245	5 4675	5 0081	4 6106	3 9616	3 4587	3 0609
16	14 7179	13 5777							0 0007	7 0001	0 0109	6 1422	5 8474	5 5755	5 0916	4 6755	4 0013	3 4834	3 0764
17	15 5623	14 2919	12 5611	11 6523	10 8378	10 1059	9 4466	8 8514	8 3126	7 8237	6 9740	6 2651	5 9542	E CCOC	C 1004				
18	16 3983	14 2919	13 1661	12 1657	11 2741	10 4773	9 7632	9 1216	B 5436		7 1196	6 3729	6 0472	5 7487	5 1624 5 2223	4 7296		3 5026	3 0882
19	17 2260	15 6785	13 7535	12 6593	11 6896	10 8276	10 0591	9 3719	8 7556		7 2497	6 4674	6 1280	5 B 1 7 B	5 2732	4 7746	4 0591	3 5 1 7 7	3 0971
20	18 0456	16 3514	14 3238	13 1339	12 0853	11 1581	10 3356	9 6036	8 9501		7 3658	6 5504	6 1982	5 8775	5 3 1 6 2	4 8122	4 0799	3 5294	3 1039
20	10 0430	10 3514	14 8775	13 5903	12 4622	11 4699	10 5940	9 8181	9 1285		7 4694	6 6231	6 2593	5 9288	5 3527	4 8435 4 8696	4 0967	3 5386	3 1090
25	22 0232	19 5235	17 4131	15 6221	14.0000							O OLD	0 2 3 3 3	2 3200	2 2241	4 6090	4 1103	3 5458	3 1129
30	25 8077	22 3965	19 6004	17 2920		12 7834	11 6536	10 6748	9 8226	9 0770	7 8431	6 8729	6 4641	6 0971	5 4669	4 9476	4 1474	2.50.0	
40	32 8347	27 3555	23 1148	19 7928	15 3725	13 7648	12 4090	11 2578	10 2737	9 4269	8 0552	7 0027	6 5660	6 1772	5 5 1 6 8	4 9476	4 14/4	3 5640	
50	39 1961	31 4236	25 7298	21 4822	17 1591	15 0463	13 3317	11 9246	10 7574		8 2438	7 1050	6 6418	6 2335	5 5482	4 9789	4 1659	3 5693	
60	44 9550	34 7609	27 6756	22 6235	18 2559	15 7619	13 8007	12 2335	10 9617	9 9 1 4 8	8 3045	7 1327	6 6605	6 2463	5 5541	4 9996	4 1659	3 5712	
	2550	0003	2,0/30	22 0235	18 9293	16 1614	14 0392	12 3766	11 0480	9 9672	8 3240	7 1401		6 2482		4 9999	4 1667	3 5714	
														2 4 40 5	9 4000	4 2333	4 106/	3 5714	3 1250

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Period	1%	2%	3%	4%	5%	6%	7%	8%	9 %	10 %	12 %	14 %	15 %	16 %	18%	20 %	24 %	28 %	32 %	36 %
1	1 0100	1 0200	1 0300	1 0400	1 0500	1 0600	1 0700	1 0800	1 0900	1 1000	1 1200	1 1400	1 1500	1 1600	1 1800	1 2000	1 2400	1 2800	1.3200	1.3600
2	1 0201	1 0404	1 0609	1 0816	1 1025	1 1236	1 1449	1 1664	1 1881	1 2100	1 2544		1 3225	1 3456	1 3924	1 4400	1 5376	1 6384	1 7424	1 8496
3	1 0303	1 0612	1 0927	1 1249	1 1576	1 1910	1 2250	1 2597	1 2950	1 3310	1 4049	1 4815	1 5209	1 5609	1 6430	1 7280	1 9066	2 0972	2 3000	2.5155
	1 0406	1 0824	1 1255	1 1699	1 2155	1 2625	1 3108	1 3605	1 4116	1 4641	1 5735	1 6890	1 7490	1 8106	1 9388	2 0736	2 3642	2 6844	3 0360	
5	1 0510	1 1041	1 1593	1 2167	1 2763	1 3382	1 4026	1 4693	1 5386	1 6105	1 7623	1 9254	2 0114	2 1003	2 2878	2 4883	2 9316	3 4360	4 0075	
6	1.0615	1 1262	1 1941	1 2653	1 3401	1 4185	1 5007	1 5869	1 6771	1 7716	1 9738	2 1950	2 3131	2 4354	2 6996	2 9960	3 6357	4 3980	5 2999	6 3275
7			1 2299	1 3159	1 4071	1 5036	1 6058	1 7138	1 8280			2 5023				3 5832		5 6295	6 9826	8 6054
8	1.0829	1 1717	1 2668	1 3686	1 4775	1 5938	1 7182	1 8509	1 9926			2 8526		3 2784	3 7589		5 5895	7 2058	0 0020	11 703
9	1.0937	1 1951	1 3048	: 4233	1 5513	1 6895	1.8385					3 2519					6 9310	9 2234	12 166	15 916
10	1 1046	1 2190	1 3439	1 4802	1 6289	1 7908	1 9672					3 7072							16 059	21 646
11	1 1157	1 2434	1 3842	1 5395	1 7103	1.8983	2 1049	2 3316	2 5804	2 8531	3 4 7 8 5	4 2262	4 6524	5 1 1 7 3	6 1750	7.4301	10.657	15 111	21 198	29 439
12	1 1268	1 2682	1 4258	1 6010	1 7959		2 2522					4 8179		5 9360		8 9 1 6 1	13 214	19 342	27 982	40 037
13	1 1381	1 2936	1 4685	1 6651	1 8856	2 1329	2 4098					5 4924		6 8858	8 5994	10 699	16 386	24 758	36 937	54 451
14	1 1495		1 5126	1 7317	1 9799							6 2613			10 147		20 319	31 691	48 756	74 053
15	1 1-100	1 3459	. 0 . 0		2 0789							7 1379				15 407			64 358	100 71
16	1 1726	1 3728	1 6047	1 8730	2 1829	7 5404	2 9522	3 4259	3 9703	4 5950	6 1304	B 1372	9 3576	10.748	14 129	18 499	21 742	51 027	84 953	136 96
17	1 1843	1 4002		1 9479	2 2920							9 2765					38 740	66 461	112 13	186 27
18	1 1961	1 4282	1 7024	2 0258	2 4066		3 3799						12 375	14 462	19 673			85 070	148 02	253 33
19	1 2081	1 4568	1 7535	2 1068	2 5270		3 6165					12 055		16 776	23 214		59 567	108 89	195.39	344 53
20	1 2202	1 4859	1 8061		2 6533							13 743					73 864	139 37	257 91	
. 21	1 2324	1 5157		2 2788	2 7860							15 667						178 40	340 44	637 26
22	1 2447	1 5460	1 9161	2 3 6 9 9	2 9253		4 4304		6 6586			17 861	21 644	26 186		55 206	113 57	228 35	449 39	866 67
23	1 2572	1 5769	: 9736	2 4647	3 0715		4 7405		7 2579			20 361	24 891		45 007		140.83	292 30	593 19	1178 6
24	1 2697	1 6084	2 0328	2 5633	3 2251							23 212		35 236		79 496	174 63	374 14	783 02	1602 9
25	1 2824	1 6406	2 0938	2 6668	3 3864	4 2919	5 4274	6 8485	8 6231	10 834	17 000	26 461	32 318	40 874	62 668	95 396	216 54	478 90	1033 5	2180 0
26	1 2953	1 6734	2 1566	2 7725	3 5557	4 5494	5 8074									114 47		612 99	1364 3	2964 9
27	1 3082	1 7069	2 2213	2 8834	3 7335	4 8223	6 2139	7 9881	10 245	13 110	21 324	34 389	43 535	55 000	87 259	137.37	332 95	784 63	1800 9	4032 2
28	1 3213	1 7410	2 2879	2 9987	3 9201	5 1117	6 6488				23 883		50 065	63 800	102 96	164 84	412 86	1004 3	2377 2	5483 8
29	1 3345	1 7758	2 3566		4 1 1 6 1							44 693		74 008	121 50			1285 5	31379	7458 0
30	1 3478	1 81 14	2 4273	3 2434	4 3219	5 7435	7 6123	10 062	13 267	17 449	29 959	50 950	66 211	85 849	143 37	237 37	634 81	1645 5	41420	10143
40	1 4889	2 2080	3 2620	4 8010	7 0400	10 285	14 974	21 724	31 409	45 259	93 050	188 88	267 86	378 72	750 37	1469 7	5455 9	19426	66520	
50	1 6446	2 6916	4 3839	7 1067	11 467		29 457				289 00	700 23	1083 6	1670 7	3927 3	91004	46890		•	
50	1.8167	3 2810	5 8916	10 519	18 679	32 987	57 946	101 25	176 03	304 48	897 59	2595 9	4383 9	7370 1	20555	56347				

Table A.4 Sum of an Annuity of \$1 Per Period for n Periods

$$\frac{(1+i)^{N}-1}{i}$$

											_									
Number of Periods	1 %	2%	3 %	4%	5 %	6%	7%	8%	9 %	10 %	12%	14%	15 %	16 %	18 %	20 %	24 %	28 %	32 %	36 %
1	1 0000	↑ 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	↑ 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000	1 0000
2	2 0100	2 0200	2 0300	2 0400	2 0500	2 0600	2 0700	2 0800	2 0900	2 1000	2 1200			2 1600	2 1800	2 2000	2 2400	2 2800	2 3200	2 3600
3	3 0301	3 0604	3 0909	3 1216	3 1525	3 1836	3 2 1 4 9	3 2464	3 2781	3 3100		3 4396	3 4725	3 5056	3 5724	3 6400	3 7776	3 9 1 8 4	4 0624	4 2096
4	4 0604	4 1216	4 1836	4 2465	4 3101	4 3746	4 4399	4 5061			4 7793			5 0665	5 2154	5 3680	5 6842	6 0156	6 3624	6 7251
5	5 1010	5 2040	5 3091	5 4 1 6 3	5 5256	5 6371	5 7507	5 8666	5 9847	6 1051	6 3528	6 6 10 1	6 7424	6 8771	7 1542	7 4416	8 0484	8 6999	9 3983	10 146
6	6 1520	5 308‡	6 4684	6 6330	6 8019	6 9753	7 1533	7 3359	7 5233	7 7156	8 1152				9 4420		10 980	12 135	13 405	14 798
7	7 2135	7 4343	7 6625	7 8983	8 1420	8 3938	8 6540		9 2004	9 4872		10 730	11 066	11 413	12 141	12 915	14 615	16 533	18 695	21 126
	8 2857	8 5830	8 8923	9 2142	9 5491	9 8975	10 259	10 636	11 028	11 435	12 299	13 232	13 726	14 240	15 327	16 499	19 122	22 163	25 678	29 731
9	9 3685	9 7546	10 159	10 582	11 026	11 491	11 978	12 487	13 021	13 579	14 775	16 085	16 785	17 518	19 085	20 798	24 712	29 369	34 895	
10	10 462	10 949	11 463	12 006	12 577	13 180	13 816	14 486	15 192	15 937	17 548	19 337	20 303	21 321	23 521	25 958	31 643	38 592	47 061	5/ 351
11	11 566	12 168	12 807	13 486	14 206	14 971	15 783	16 645	17 560	18 531	20 654		24 349		28 755	32 '50		50 398	63 121	78 998
12	12 682	13 412	14 192	15 025	15 917	16 869	17 888	18 977	20 140	21 384	24 133	27 270		30 850	34 931	39 580	50 894	65 510	84 320	108 43
13	13 809	14 680	15 617	16 626	17 713	18 882	20 140	21 495	22 953	24 522	28 029	32 088	34 351	36 786	42 218	48 496	64 109	84 852	112 30	148 47
14	14 947	15 973	17 086	18 291	19 598	21 015		24 214					40 504	43 672	50 818	59 195	80 496	109 61	149 23	202 92
15	16 096	17 293	18 598	20 023	21 578	23 276	25 129	27 152	29 360	31 772	37 279	43 842	47 580	51 659	60 965	72 035	100 81	141 30	197 99	276 97
16	17 257	18 639	20 156	21 824	23 657	25 672	27 888	30 324	33 003	35 949	42 753	50 980	55 717	60 925	72 939	87 442	126 01	181 86	262 35	377 69
17	18 430	20 012	21 761	23 697	25 840	28 212	30 840	33 750	36 973	40 544	48 883	59 117	65 075	71 673	87 068	105 93	157 25	233 79	347 30	
18	19 614	21 412	23 414	25 645	28 132	30 905	33 999	37 450	41 301	45 599	55 749	68 394	75 836	84 140	103 74	128 11	195 99	300 25	459 44	700 93
19	20 810	22 840	25 116	27 671	30 539	33 760		41 446		51 159	63 439	78 969	88 211	98 603	123 41	154 74	244 03	385 32		954 27
20	22 019	24 297	26 870	29 778	33 066	36 785	40 995	45 762	51 160	57 275	72 052	91 024	102 44	115 37	146 62	186 68	303 60	494 21	802 86	1298 8
21	23 239	25 783	28 676	31 969	35 719	39 992	44 865	50 422	56 764	64 002	81 698	104 76	118.81	134 84	174 02	225 02	377 46	633 59	1060 7	1767 3
22	24 471	27 299	30 536	34 248	38 505	43 392	49 005	55 456	62 873	71 402	92 502	120 43	137 63	157 41	206 34	271 03		811 99	1401 2	2404 6
23	25.716	28 845	32 452	36 617	41 430	46 995	53 436	60 893	69 531	79 543	104 60	138 29	159 27	183 60	244 48	326 23	582 62	1040 3	1850 6	3271 3
24	26 973	30 421	34 426	39 082	44 502	50 815	58 176	66 764	76 789	88 497	118 15	158 65	184 16	213 97	289 49	392 48	723 46	1332 6	24438	
25	28 243	32 030	36 459	41 645	47 727	54 864	63 249	73 105	84 700	98 347	133 33	181 87	212 79	249 21	342 60	471 98	898 09	1706 8	3226 8	6052 9
26	29 525	33 670	38 553	44 311	51 113	59 156	68 676	79 954	93 323	109 18	150 33	208 33	245 71	290 08	405 27	567 37	11146	2185 7		8233 0
27	30 820	35 344	40 709	47 084	54 669	63 705	74 483	87 350	102 72	121 09	169 37	238 49	283 56	337 50		681 85	1383 1	2798 7		111979
28	32 129	37.051	42 930	49 967	58 402	68 528	80 697	95 338	112 96	134 20	190 69	272 88	327 10	392 50	566 48	819 22	17160	3583 3		15230 2
29	33 450	38 792	45 218	52 966	62 322	73 639	87 346	103 96	124 13	148 63	214 58	312 09	377 16	456 30	669 44	984 06	2128 9	4587 6		207141
30	34 784	40 568	47 575	56 084	66 438	79 058	94 460	113 28	136 30	164 49	241 33	356 78	434 74	530 31	790 94	11818	2640 9	5873 2	12940	28172 2
40	48 886	60 402	75 401	95 025	120 79	154 76	199 63	259 05	337 88	442 59	767 09	1342 0	1779 0	2360 7	4163 2	7343 8	22728	69377	•	-
50	64 463	84 579	112 79	152 66	209 34	290 33	406 52	573 76	815 08	1163 9	2400 0	4994 5	7217 7	10435	21813	45497			•	
60		114.05		237 99	353.58	533 12	813 52	1253 2	1944 7	3034 8	74716	18535	29219	46057			•	•	•	

#### CERTIFIED CHAPTERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ADVANCED FINANCE 556 EXAMINATION June, 1985 EXAMINER'S COMMENTS

#### **General**

This examination presented weak results. It was evident that the students were not well prepared because two of the three mini cases were very similar to problems in the course notes.

### Specific

- Q.1 (a) The answers did not include the required rate of return.
  - (b) Students did not realize that it was a coefficient of variation and they assigned the same risk to a debt situation as to a non-debt situation.
  - (c) Well done.
  - (d) Students did not know that dividends paid by a Canadian Company to another Canadian Company are not taxable.
- $\mathbb{Q} \cdot 2$  (a) Evaluations were incomplete. There was no comparison and no trend.
  - (b) Well done.
  - (c) Students did not answer the question that was asked.
- $\mathbb{Q}.3$  (a) Students did not know what a cash break-even point or operating leverage was.
  - (b) Students were not aware of the impact of inflation on interest rates and formulas were applied without thought as to appropriateness.

# CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAMBIA

# June, 1985 SUGGESTED SOLUTIONS

Marks

Time: 3 Hours

40 Q.1

- (10) a) Expected return, standard deviation and coefficient of variation
  - (5) i) Opal does not use financial leverage

700,000	900,000	1,500,000	2,000,000	2,500,000
_	_			_
700,000	900,000	1,500,000	2,000,000	2,500,000
336,000	432,000	720,000	960,000	1,200,000
364,000	468.000	780,000	1,040,000	1,300,000
	,	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
7.28%	9.36%	15.6%	20.8%	26.0%
0.10	0.20	0.40	0.20	0.10
	700,000 336,000 364,000 5,000,000	700,000 900,000 336,000 432,000 364,000 468,000 5,000,000 5,000,000	700,000 900,000 1,500,000 336,000 432,000 720,000 364,000 468,000 780,000 5,000,000 5,000,000 5,000,000 7.28% 9.36% 15.6%	700,000 900,000 1,500,000 2,000,000 336,000 432,000 720,000 960,000 364,000 468,000 780,000 1,040,000 5,000,000 5,000,000 5,000,000 5,000,000

Continued...
Page 1 of 9

# Expected return on shareholders' equity:

$$(7.28 \times 0.10) + (9.36 \times 0.20) + (15.6 \times 0.40) + (20.8 \times 0.20) + (26.0 \times 0.10) = 15.0%$$

# Standard deviation:

$$(7.28 - 15.0)^2 \times 0.10 + (9.36 - 15.0)^2 \times 0.20 + (15.6 - 15.0)^2 \times 0.40 + (20.8 - 15.0)^2 \times 0.20 + (26.0 - 15.0)^2 \times 0.10 = 31.29$$

$$\sqrt{31.29}$$
 = 5.59%

# Coefficient of variation:

$$\frac{5.59\%}{15.0\%} = 0.37$$

# (5) ii) Opal takes on debt

Cash flow	700,000	900,000	1,500,000	2,000,000	2,500,000
Interest	350,000	350,000	350,000	350,000	350,000
Taxable					
income	350,000	550,000	1,150,000	1,650,000	2,150,000
Tax (48%)	168,000	264,000	552,000	792,000	1,032,000
Income available for common shareholders	182,000	286,000	598,000	858,000	1,118,000
Common shareholders' equity	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
Return on common shareholders' equity	7.28%	11.44%	23.92%	34.32%	44.72%
Probability	0.10	0.20	0.40	0.20	0.10

Continued...
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# Expected return on shareholders' equity:

$$(7.28 \times 0.10) + (11.44 \times 0.20) + (23.92 \times 0.40) + (34.32 \times 0.20) + (44.72 \times 0.10) = 23.92%$$

# Standard deviation:

$$(7.28 - 23.92)^2 \times 0.10 + (11.44 - 23.92)^2 \times 0.20 + (23.92 - 23.92)^2 \times 0.40 + (34.32 - 23.92)^2 \times 0.10 + (44.72 - 23.92)^2 \times 0.10 = 123.74$$

$$\sqrt{123.74} = 11.12\%$$

# Coefficient of variation:

$$\frac{11.12\%}{23.92\%} = 0.47$$

(5) (b) The coefficient of variation of 0.37 for financing without leverage indicates that a standard deviation corresponds to 37% of the expected rate of return. In other words one could absorb a further drop of 2.7 standard deviation (100 ÷ 37 = 2.7) before reaching a negative rate of return.

In the case of leverage financing, the coefficient of variation of 0.47 indicates that a drop of 2.1 standard deviation in relation to the expected rate of return will lead to a negative rate of return.

Thus, the probability analysis leads to the conclusion that the financial leverage alternative presents the greater risk for Opal.

(10) (c) Since dividends are not deductible, this alternative leads to a loss of interest-linked tax credits. The results would be as follows:

Cash flow	700,000	900,000	1,500,000	2,000,000	2,500,000
Tax	336,000	432,000	720,000	960,000	1,200,000
After-tax income	364,000	468,000	720,000	960 000	1 200 000
			•	960,000	1,200,000
Dividends	350,000	350,000	350,000	350,000	350,000
Income available for common shareholders	14,000	118,000	370,000	610,000	850,000
Common shareholders' equity	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
Return on common shareholders' equity	0.56%	4.72%	14.8%	24.4%	34.0%
Probability	0.10	0.20	0.40	0.20	0.10

The expected return on common shareholders' equity will be: 15.2%

The standard deviation will be: 9.78%

The coefficient of variation will be:  $\frac{9.78\%}{15.2\%} = 0.64$ 

Thus, the use of preferred stock will reduce the profit level. However, although the coefficient of variation indicates greater risk if preferred stock is used, it should be pointed out that, since failure to declare a dividend does not lead to bankruptcy, this alternative does involve less risk than debt financing.

(15) (d) It is more advantageous for Opal to borrow since the interest on such debt can be deducted from income. Gesfin would merely receive Opal dividends and consequently its income would not be taxable. Gesfin, therefore, would not be able to deduct interest payments.

Continued...
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As regards anticipated income the results for each alternative would be the following:

	OPAL BORROWS	BORROWS
Opal's expected cash flow Interest	\$1,500,000 350,000	\$1,500,000
Opal's taxable income	\$1,150,000	\$1,500,000
Dividends paid to Gesfin Interest	\$ 598,000	\$ 780,000
Gesfin's net income	\$ 598,000	\$ 430,000

# 30 Q.2 (20) (a) Analysis of Saint-Lawrence's financial position

(5) First stage: Overall evaluation 1982 1983 1984 Return on Saint-Lawrence 0.19 0.18 0.13 shareholders' equity Competitors 0.21 0.24 0.23

The profitability of Saint-Lawrence is dropping and, in 1984, was considerably lower than that of its competitors.

# (5) Second stage: Evaluation of components of profitability

		1982	1983	1984
Net income/Sales	Saint-Lawrence Competitors	0.039 0.035	0.04	0.033 0.037
Sales/Assets	Saint-Lawrence Competitors	3.3	2.6	1.7
Liabilities/Assets	Saint-Lawrence Competitors	0.32 0.50	0.43 0.50	0.56 0.50

Saint-Lawrence's net margin has held its own against the competition, but its debt level has increased from 1982 to 1984 and in the latter year is slightly higher than that of its competitors. Given the standard deviation of the debt ratio, a ratio of 0.56 compares very well with the average for the industrial sector. It is clear that the lowered profit level of the firm is due to a problem in asset turnover. Consequently the next step is to analyze asset management.

# (5) Third stage: Use of assets

			1982	1983	1984
Collection period of receivables	{	Saint-Lawrence Competitors	3 <b>4</b> 30	36 30	47 30
Inventory turnover	{	Saint-Lawrence Competitors	9.3 7	5.6 6	3.4 7
Fixed asset turnover	{	Saint-Lawrence Competitors	12.3 14	10.2 14	6.9 14

This breakdown of the use of assets shows that all Saint-Lawrence's assets are underused. This may be normal when dealing with capital assets which only show a profit after a number of years, but in the case of receivables and inventory, corrective action must be taken.

# (5) Fourth stage: Liquidity

		1982	1983	1984
Current ratio	Saint-Lawrence Competitors	2.8 2.4	1.9	1.4
Liquid asset ratio {	Saint-Lawrence Competitors	1.4 1.5	0.8 1.5	0.5

Saint-Lawrence's liquidity has deteriorated over the threeyear period, a situation aggravated by the inventory increase over the same time frame.

We may conclude, therefore, that the unsatisfactory profit level of the firm is due to inefficient asset management, and that, furthermore, Saint-Lawrence's degree of liquidity has dropped from 1982 to 1984.

(5) (b) It is necessary to increase the profit-earning capacity of the company's assets and restore its liquidity.

To do this, the company must:

- (1) slow down or put an end to the growth in fixed assets;
- (2) attempt to collect receivables more rapidly;
- (3) use, sell, or write off surplus inventory, thus, reducing the need for bank loans at the end of the financial year.
- (5) (c) Management should draw up pro forma statements (income statements, balance sheets, cash budgets) based on our recommendations, in order to evaluate the real needs of the company and its repayment capacity.

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30 Q.3 (10) a) Information to be supplied:

(3) i) General break-even point:

$$V = \frac{F}{1 - K}$$

V = sales at break-even point

F = total fixed expenses

K = ratio of total variable costs to sales

$$v = \frac{68,400}{1-0.91} = $760,000$$

(3) ii) Cash break-even point: (V')

$$V' = \frac{F - depreciation}{1 - K}$$

$$V' = \frac{68,400 - 9,100}{1 - 0.91} = $658,889$$

(4) iii) Operating leverage (O.L.)

0.L.= 
$$\frac{1,250,000 - 1,137,400}{1,250,000 - 1,137,400 - 68,400} = 2.6$$

WITH: We could have differentiated interest payments from other fixed expenses included in the \$68,400 and then calculated the operating leverage and the financial leverage separately. Here we have combined the two coefficients.

## (20) (b) Minimum resale price

(5) i) We must first calculate the value of the annual cash flow without taking inflation into account. To do this, we should subtract relevant outlays from sales or add expenses other than actual disbursements to operating income.

NOTE: Depreciation and interest must not be deducted.

Operating income \$48,400
Plus: depreciation 9,100
Annual cash flow \$57,500

Continued...
Page 7 of 9

(5) ii) In order to adjust annual cash flows for inflation, we may either multiply each flow by (1 + 0.6)<sup>t</sup> or keep the amount of \$57,500 and discount it using a deflated rate.

The real, or deflated, rate is: r

The nominal discount rate with an inflation premium is: 17%

$$(1 + 0.17) = (1 + r) (1 + 0.06)$$

$$(1 + r) = \frac{(1.17)}{(1.06)} = 1.1038$$

$$r = 10.48$$

The adjusted cash flows are:

$$57,500 (1 + 0.06)^{1} = 60,950$$

$$57,500 (1 + 0.06)^2 = 64,607$$

(10) iii) The minimum selling price for the business 10 years from now should be the one which gives a zero net present value (NPV).

P = selling price 10 years from now

NPV = 
$$\sum_{t=1}^{10} \frac{57,500 (1 - 0.26)}{(1 + 0.104)^{t}}$$

$$+ \frac{75,000 \times 0.05 \times 0.26}{0.17 + 0.05}$$

$$\begin{array}{c} + \ \underline{12,000 \times 0.30 \times 0.26} \\ \hline 0.17 + 0.30 \end{array}$$

$$+ \frac{18,000 \times 0.20 \times 0.26}{0.17 + 0.30}$$

$$+ \frac{P - [(P - 450,000) \times 0.5 \times 0.26]}{(1 + 0.17)^{10}}$$

- 450,000

= 0

NPV = 257,018

+ 4,432

+ 1,992

+ 2,530

$$+ P - [(P - 450,000) \times 0.5 \times 0.26]$$
 $(1 + 0.17)^{10}$ 

- 450,000

$$\frac{P - [(P - 450,000) \times 0.5 \times 0.26]}{(1 + 0.17)^{10}} = 184,028$$

$$P - [(P - 450,000) 0.13] = 184,028 (1 + 0.17)^{10}$$

$$P - 0.13 P + 58,500 = 884,591$$

0.87 P = 826,091

P = 949,530

In order for Mr. Latouche's investment to bring in an acceptable profit, he must be able to resell the grocery 10 years from now for \$949,530.

## NOTES:

- (1) Depreciable assets are those already existing and therefore not subject to the half-year rule.
- (2) When selling the business the assets will not be disposed of individually.
- (3) Capital gain at time of resale in 10 years should be taken into account.

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KND OF SOLUTIONS

#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# MANAGEMENT AUDITING 567 EXAMINATION December, 1984

Marks Time: 3 Hours

18 Q.1 Computer assisted auditing techniques can prove beneficial in the internal audit, but there are certain requirements which must be in place in order that the techniques can be realized.

#### REQUIRED:

- (10) (a) List the reasons for using computer assisted auditing techniques and describe the requirements that must be in place to do so.
- (6) (b) Briefly explain:
  - i) auditing "around" the computer;
  - ii) auditing "with" the computer;
  - iii) auditing "through" the computer.
- (2) (c) What are some reasons why auditors have been reluctant to audit "with" the computer?
- 12 0.2
  - (8) (a) Stratified sampling, cluster sampling, stop-or-go sampling, and dollar unit attributes sampling are sampling methods which can be employed by the auditor.

# REQUIRED:

Explain each of the above methods of sampling.

(4) (b) Two terms used in statistical sampling are "non-sampling risk" and "non-sampling error."

#### REQUIRED:

Explain the difference between the two above terms.

10 Q.3

(5) (a) One of the major facets of a management audit is the evaluation of internal control. In evaluating the control system there are a number of distinct steps which the auditor should perform.

### REQUIRED:

What are the <u>distinct steps</u>, which the auditor should take in evaluating a control system.

(5) (b) Since it is impracticable to perform a 100% transaction audit, the internal auditor must evaluate the potential risk of loss from various factors. One of these factors when auditing a large company, which must be of prime concern, is the evaluation of management's integrity risk.

# REQUIRED:

Present five points that should be raised in the evaluation of management's integrity risk.

10 Q.4 The Institute of Internal Auditors, Standard No. 5, states that "The director of internal audit should properly manage the internal audit department."

This No. 5 Standard is actually redundant because if the first four Standards are maintained, the internal audit department will necessarily be "properly managed."

# REQUIRED:

List the first four standards and then state why you should agree or disagree that the fifth standard is redundant. Give reasons to support your position.

10 Q.5 In the examination of cash, the management auditor must be concerned with its economic and efficient use. In assessing whether management has been successful in this regard, there are a number of aspects of the cash and bank operations into which the auditor should inquire.

### REQUIRED:

In point form, prepare a list of these inquiries.

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10 Q.6 The following quotation comes from Lesson No. 10 "Auditing in the Public Sector; Reporting" of your notes.

"In order to identify and explain the broad scope areas of comprehensive auditing, the acronym FRAME was created by the Office of the Auditor General of Canada."

#### REQUIRED:

Describe the five components of FRAME which illustrate the comprehensive characteristics of this new approach to auditing.

14 Q.7

(4) (a) A junior internal auditor was overheard to say that "...auditing the sales forecast is a waste of time. It is only last year's figures adjusted for inflation and it really serves no useful function."

### REQUIRED:

Respond to the junior auditor by explaining the  $\frac{importance}{importance}$  of the sales forecast.

- (10) (b) There are many items which could be raised by the internal auditor during the audit of the sales forecast. Twenty-one of them are listed below. Each item is either a:
  - Verification procedure;
  - Compliance procedure;
  - Economy/efficiency procedure;
  - Effectiveness procedure;
  - A combination of more than one of the above.

#### REQUIRED:

Select the best answer for each of the following items that relate to the above audit procedures of a sales forecast. Write your answer in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. If more than one answer is given, that item will NOT be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

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- (a) Find out who, in practice, is responsible for preparing the sales forecast and associated reports and who receives them and further, see if the areas of responsibility for each of the staff involved in the preparation of sales forecasts are clearly defined and understood by the people.
  - i) This is only a verification procedure item.
  - ii) This is a multi-procedure item involving the verification, compliance and effectiveness procedures.
  - iii) This item is involved in both the economy/efficiency procedure and the verification procedure.
  - iv) This is a multi-procedure item involving the verification, compliance and economy/efficiency procedures.
  - v) This is only an effectiveness procedure item.
- (b) Examine the whole forecasting procedure for any bottlenecks in the flow of information for these reports.
  - i) This is only a verification procedure item.
  - ii) This is only an economy/efficiency procedure item.
  - iii) This is only a compliance procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This item involves all four of the above procedures.
- (c) Ask those directly involved why the current methods of forecasting are being used and whether other methods have been tested or considered. Regardless of whether the forecast is prepared manually or by computer, determine what the possibilities are for computational error. (This will necessitate a certain amount of actual checking of the mathematics of the forecast by the auditor.)
  - i) This item is involved in both the economy/efficiency and compliance procedures.
  - ii) This item is involved in both the economy/efficiency and the effectiveness procedures.
  - iii) This item is involved in both the verification and economy/efficiency procedures.
  - iv) This item is only a compliance procedure.
  - v) This item is only a verification procedure.

Continued...

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- (d) Determine if there is any overlapping of responsibilities of the individual staff members assigned in preparation of the forecasts; and, see if individual staff members lack any authority they need to carry out their assigned forecasting responsibilities.
  - i) This is only a verification procedure item.
  - ii) This is only a compliance procedure item.
  - iii) This is only an economy/efficiency procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This is a multi-procedure item.
- (e) If use is made of exponential growth rates (based on such indicators as an increase in GNP, industry forecasts or other economic factors), consider how appropriate they are for this organization's future outlook and what assumptions are inherent in these basic data making them applicable to this organization.
  - i) This is only a verification procedure item.
  - ii) This is both a compliance and a verification procedure item.
  - iii) This is only an economy/efficiency procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This is both an economy/efficiency procedure and an effectiveness procedure item.
- (f) Find out if the sales forecast is compiled to produce the most reliable and precise forecasts within the realm of practicability. That is, are the costs of preparing it commensurate with the benefits derived from its use.
  - i) This is only a verification procedure item.
  - ii) This is only an economy/efficiency procedure item.
  - iii) This is only an effectiveness procedure item.
  - iv) This is only a compliance procedure item.
  - v) This item is involved in more than one of the above procedures necessary to audit the sales forecast.
- (g) Review discrepancies between previous forecasts and actual sales. See if they were investigated to determine if there are fundamental and recurring errors in the forecasting. If this is so, find out if the forecasts are continually under-optimistic or over-optimistic and what is being done to correct this situation.

Continued ...

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- i) This is both a verification procedure and a compliance procedure item.
- ii) This is both a verification procedure and an economy/efficiency procedure item.
- iii) This is both a verification procedure and an effectiveness procedure item.
- iv) This is both a compliance procedure and an economy/efficiency procedure item.
- v) This is both a compliance procedure and an effectiveness procedure item.
- (h) Review the distribution of the forecast to determine if it goes to the people who can put it to best use and to see if the distribution is unnecessarily wide.
  - i) This is only a verification procedure item.
  - ii) This is only a compliance procedure item.
  - iii) This is both a compliance procedure and a verification procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This is only an economy/efficiency procedure item.
- (i) Find out if the sales forecast is presented in usable form and is available when needed.
  - i) This is both a verification procedure and a compliance procedure item.
  - ii) This is both an economy/efficiency procedure and an effectiveness procedure item.
  - iii) This is both a verification procedure and an economy/efficiency procedure item.
  - iv) This is both a verification procedure and an effectiveness procedure item.
  - v) This is both a compliance procedure and an economy/efficiency procedure item.
- (j) Determine the assumptions used in preparing the forecast and see if they are known to and accepted by all persons concerned with the forecast.
  - i) This is only a compliance procedure item.
  - ii) This is only an economy/efficiency procedure item.
  - iii) This is only an effectiveness procedure item.
  - iv) This is only a verification procedure item.
  - v) This is both a compliance and effectiveness procedure item.

Continued ...

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- (k) Determine if the basic data and assumptions were obtained from two or more sources and, if so, were the results compared?
  - i) This is only a verification procedure item.
  - ii) This is only a compliance procedure item.
  - iii) This is only an economy/efficiency procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This is a multi-procedure item.
- Investigate to ensure that the sales forecast is based on adequate information.
  - i) This is both a verification procedure and a compliance procedure item.
  - ii) This is a single procedure item.
  - iii) This is both a compliance procedure and an economy/efficiency procedure item.
  - iv) This is both an economy/efficiency procedure and an effectiveness procedure item.
  - v) This is both an effectiveness procedure and a compliance procedure item.
- (m) Determine the overall corporate objectives in preparing sales forecasts and see if there is a published management policy regarding sales forecasts and a standard practice instruction regarding their preparation.
  - i) This is only a verification procedure item.
  - ii) This is only an economy/efficiency item.
  - iii) This is both a verification procedure and an effectiveness procedure item.
  - iv) This is only a compliance procedure item.
  - v) This is both a compliance procedure and an economy/efficiency procedure item.
- (n) Determine who the recipients are and see how the sales forecast is actually used and then determine: if it gives them what they need, if it can be improved, if it is of little use, and if the detail is too little or too much.
  - i) This is both a verification procedure and a compliance procedure item.
  - ii) This is both a verification procedure and an economy/efficiency procedure item.
  - iii) This is both an economy/efficiency procedure and an effectiveness procedure item.
  - iv) This is only a verification procedure item.
  - v) This is only a compliance procedure item.

Continued...

- (o) See that the responsibilities have been allocated to departments and individuals in such a realistic and practical manner as may be expected to produce the best overall results. Is there a logical and reasonable distribution of the workload? In doing this item, consider whether any functions could be performed more effectively elsewhere in the organization and see if there appears to be adequate cooperation and coordination among all parts of the organization in the preparation of the forecast.
  - i) This is only an economy/efficiency procedure item.
  - ii) This is only a compliance procedure item.
  - iii) This is only a verification procedure item.
  - iv) This is only an effectiveness procedure item.
  - v) This item involves three of the above procedures.
- (p) Calculate the cost in terms of time and money of preparing the forecast and see if management is satisfied with the return on this cost. If the forecast is prepared by computer, does the very presence of a computer printout endow the reports with an exactitude not justified by the basic inputs?
  - i) This is both a verification procedure and a compliance procedure item.
  - ii) This is both a verification procedure and an economy/efficiency procedure item.
  - iii) This is both a verification procedure and an effectiveness procedure item.
  - iv) This is both a compliance procedure and an effectiveness procedure item.
  - v) This is both an economy/efficiency and an effectiveness procedure item.
- (q) Find out if there is a manual or some sort of detailed instruction spelling out the exact steps in preparing the sales forecast and, determine if its instructions are being followed. If not, can they be followed? See if these instructions will produce the desired and expected results and if they are in keeping with top level policy decisions and criteria.

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- i) This item is part of the verification procedure, the compliance procedure and the economy/efficiency procedure.
- ii) This item is part of the verification procedure, the economy/efficiency procedure and the effectiveness procedure.
- iii) This item is part of the verification procedure, the compliance procedure, and the effectiveness procedure.
- iv) This item is part of the compliance procedure, the economy/efficiency procedure and the effectiveness procedure.
- v) This item is only a compliance procedure.
- (r) Determine if the forecast is produced and distributed in time to permit meaningful review and action and whether it is prepared often enough or more often than necessary. When applicable, determine if any benefits would accrue if the reports and forecasts were received sooner and if it would be possible to supply them sooner.
  - i) This is only a verification procedure item.
  - ii) This is only an economy/efficiency procedure item.
  - iii) This is only an effectiveness procedure item.
  - iv) This is both a compliance procedure and an economy/efficiency procedure item.
  - v) This is both an economy/efficiency procedure and an effectiveness procedure item.
- (s) See if any of the basic information has been obtained from the sales force and note how important this information is in the formulation of the final forecast. Furthermore, if the sales force was not consulted, find out why.
  - i) This is a multi-procedure item.
  - ii) This is only an effectiveness procedure item.
  - iii) This is only an economy/efficiency procedure item.
  - iv) This is only a verification procedure item.
  - v) This is only a compliance procedure item.
- (t) Cross-check reports and forecasts to see if the information is being duplicated and, if so, check for conflict between figures.

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- i) This is both a verification procedure and a compliance procedure item.
- ii) This is both a verification procedure and an economy/efficiency procedure item.
- iii) This is both a verification procedure and an effectiveness procedure item.
- iv) This is only an economy/efficiency procedure item.
- v) This is only a verification procedure item.
- (u) Investigate to see if the sales forecast is being used to its best advantage and if it is understood by the executives who use it.
  - i) This is only a compliance procedure item.
  - ii) This is only an economy/efficiency procedure item.
  - iii) This is only an effectiveness procedure item.
  - iv) This is only a verification procedure item.
  - v) This is a multi-procedure item.
- 16 Q.8 Before commencing the audit of inventory and stores operations, you, as internal auditor, should design your review so that you consider those items which are fundamental to the control of inventory.

# REQUIRED:

Prepare a questionnaire designed to review the fundamental controls of inventory.

100

END EXAMINATION

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### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# MANAGEMENT AUDITING 567 EXAMINATION December, 1984 EXAMINER'S COMMENTS

#### General

Results indicated that, in general, students were familiar with all the course material. For each question, there were several papers achieving full marks. Questions 3(b), 6 and 7(b) accounted for the majority of lost marks. However, many students who did poorly on these questions still passed the examination because they knew the remainder of the course material very well. Of those who failed, many seemed to know a little about every topic, but not enough overall to achieve a passing mark.

### Specific

- Very few students received full marks on the first part of this question because they did not list enough discrete reasons for using computer assisted auditing techniques (CAATs): instead, they listed the same reason several times with slightly different wording. Some students were careless and/or did not know the specifics about auditing "around", "with" and "through" the computer. Thus, they seemed to know what CAATs were but still missed the question. On the last part of the question, most students listed "lack of knowledge" as a reason for not auditing with computers but did not include either cost and/or lack of imagination as an additional reason.
- Most students did well on part (a), although in the explanation of cluster sampling only a few stated when it should be used or that it reduces sample reliability. A majority of students received less than full marks on part (b), indicating that they did not know the difference between "non-sampling risk" and "non-sampling error".
- Part (a) was done very well, a majority of the students answering correctly. Part (b) was based on the appendix to Lesson 4: very few papers demonstrated familiarity with this topic, so marks on this part were extremely poor.
- Q.4 A surprising number of students did not recall the first four auditing standards. Furthermore, a few students explained the first four standards, but then did not state whether Standard No. 5 was redundant. Since the question stated what Standard No. 5 was, this part should have been answered one way or the other.
- 2.5 This question was answered very well by most students.
- 2.6 A majority of students knew what the acronym FRAME stood for, though many did not answer with enough detail for full marks. A few students did not answer this question, indicating that they may not have studied besson 10.

Continued...

- Q.7 Almost all students demonstrated a good knowledge about the sales forecast. The multiple-choice items in part (b) were not handled very well: most students were correct in about seven of the twenty-one. Two students responded correctly to all 21 of the multiple-choice questions.
- The question required preparation of a questionnaire to audit inventory and store operations. Instead, many students answered as though it were a questionnaire to audit the purchasing, receiving and/or shipping functions. While some marks were awarded for questionnaire items which tied these areas in with inventory and store control, most responses did not concentrate on the "basics" of physical inventory management and control, and therefore did not receive full marks. Many students just repeated the same concept two, three, or even four times to derive sixteen questions. This was a waste of time and effort, since credit could be given only once for each concept.

# CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF MANUAL

# December, 1984 SUGGESTED SOLUTIONS

Marks		Time: 3 Hour
18 Q•1	Sourc	e: Text pp. 220 and 222 and Lesson Notes, No.5.
(10)	(a)	The main reasons for using computer assisted audit technique are:
(1)		i) audit steps can be performed economically,
(1)		ii) facilitates the use of more effective audit procedures,
(1)		iii) audit procedures can be performed on a more timely basis,
(1)		iv) tedious mechanical procedures are reduced,
(1)		n) helps fill gaps in the audit trail.
		In order that the computer assisted audit techniques can be atilized, the following requirements must be present:
(1)		<ul> <li>plans must be made in advance to allow for adequate development lead time,</li> </ul>
(1)		<ul> <li>the overall audit plan must be designed to accommodate planned computer assisted audit techniques,</li> </ul>
(1)	:	ii) the audit objectives must be clearly stated,
(1)	:	v) the audit staff should be familiar with the processing procedures,
(1)	*	<ul> <li>control of computerized audit logic and audit conclusions drawn,</li> </ul>
(1)	7	i) coverage of multiple audit steps to achieve economies

NOTE: Up to a maximum of 10 marks.

from development costs.

Continued...

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- (6) (b) The three methods are defined as follows:
  - (2) Auditing "around" the computer means reviewing the input and output, but ignoring the processing activity of the computer.
  - (2) Auditing "through" the computer means that, in addition to a review of the input and output, the actual processing activity of the computer is also examined.
  - (2) Auditing "with" the computer means that the computer is utilized as an effective tool in performing the audit.
- (2) (c) Auditors have been reluctant to audit "with" the computer because:
  - i) of a shortage of capable staff,
  - ii) they did not know how to use the computer assisted audit techniques,
  - iii) of budget restraints,
  - (1) iv) they lacked the imagination to develop new audit techniques.

NOTE: Up to a maximum of 2 marks.

- 12 Q.2
  (8) (a) Source: Text pp. 187-89 and Lesson Notes No. 2.
  - (1) i) Stratified sampling is useful when there is a considerable range in the value or importance of the individual items in the population.
  - (1) The population is divided into two or more levels, with different treatments applied to each level.
  - (1) By stratifying a population of this kind, the reliability of the whole verification process for a given total sample size is substantially increased.

NOTE: Up to a maximum of 2 marks for (i).

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- (1) ii) Cluster sampling is useful when such "other" sampling techniques as random number, interval or stratified sampling are difficult to apply.
- (1) The "other" sampling techniques may be difficult to apply because of the manner in which the sample documents are filed, or because the sample is quite large.
- (1) There is a significant reduction in sample reliability, when using cluster sampling, because of the greater variability among clusters than within clusters.

NOTE: Up to a maximum of 2 marks for (ii).

- (1) iii) Stop-or-go sampling enables the auditor to choose a "more likely looking path" if it appears more promising than the area he is currently sampling.
- (1) He can return to the original area if the "more likely looking path" does not prove fruitful or it has served its purpose.

Advantages of stop-or-go sampling include:

- (1) possible smaller sample size;
- (1) not necessary to estimate the probable population error rate in advance;
- (1) not necessary to establish a desired precision;
- (1) sample size can be increased to the level required for attribute sampling.
- (1) Stop-or-go sampling can be used to determine if it is necessary to estimate variables, but cannot be used when sampling for variables.
- (1) Stop-or-go sampling provides the maximum error rate at various confidence levels, but cannot be used to project the error rate of the population to be within certain limits.

NOTE: Up to a maximum of 2 marks for (iii).

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- (1) iv) Dollar unit attributes sampling is a modification of attribute sampling.
- (1) The sampling unit is the individual dollar as opposed to an invoice or some other physical unit.
- (1) With dollar unit attributes sampling, the dollar unit selected acts as a "hook" for the invoice to be examined. This means that invoices with larger dollar values have a greater chance of being selected.
- (1) Dollar unit attributes sampling obviates the need to stratify a population.

NOTE: Up to a maximum of 2 marks for (iv).

NOTE: In summary the maximum for Q.2 (a) is 8 marks; 2 marks each for (i), (ii), (iii), and (iv).

- (4) (b) Source: Text pp. 178 and 184.
  - (1) Non-sampling risk is the risk of making inaccurate observations. As more items are examined, the chance of making inaccurate observations is increased.
  - (1) Hence, a careful examination of a sample may provide more reliable conclusions than a complete examination of the population.
  - (1) Non-sampling errors are errors made by the auditor and are not actual errors in the sample,
  - (1) e.g., the auditor fails to locate an authorized signature because he did not look in the correct place, and he records this as an error.
- 10 Q.3 Source: Lesson Notes, No.4.
  - (5) (a) The distinct steps in evaluating a control system are:
    - (1) Obtain a description of the system.
    - (1) Evaluate the controls provided by the system to judge whether the system as designed is soundly conceived.

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- (1) Determine whether the system is being operated as planned, i.e., whether people and machines are doing what they are supposed to be doing.
- (1) Determine whether the system provides the desired control through cost-effective methods and procedures.
- (1) Determine whether, in the overall view, the system is effectively serving the needs of management in the way of control.
- (1) Decide how the outcome of the internal control review will affect other planned audit steps.
- (1) Report the findings.

NOTE: Up to a maximum of 5 marks for (a).

- (5) (b) The points to be considered in evaluating management's integrity risk are:
  - (1) What had been management's attitude toward internal control points raised in past audit reports?
  - (1) Has management ever restricted areas to audit and the scope of the audit?
  - (1) Has management provided the audit staff with sufficient manpower and qualified auditors?
  - (1) Has management communicated its position on its moral responsibilities by issuing and requiring written confirmation on conflict-of-interest and code-of-conduct policies?
  - (1) Is the company's earnings forecast realistic or is it overly optimistic?
  - (1) Is there undue pressure on the organization for continued profit improvement?
  - (1) Has growth of the company been normal or has expansion been too rapid?
  - (1) Is the company in a position of having excessive capacity?
  - (1) Are sales dependent upon a few customers or transactions?
  - (1) Is the company in a credit squeeze?
  - (1) Are any of the company's major products or product lines obsolete in the marketplace?

NOTE: Up to a maximum of 5 marks for (b).

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- 10 Q.4 Source: Text p. 54 and Lesson Notes, No. 1 and No. 2.

  The first four standards state that:
  - i) internal auditors should be independent of the activities they audit,
  - ii) the internal audit should be performed with proficiency and due professional care,
  - (1) iii) the internal audit should include an examination and evaluation of the adequacy and effectiveness of internal control and the quality of the performance in carrying out assigned responsibilities,
  - (1) iv) the internal audit should be planned, information examined and evaluated, the results communicated and followed up.
  - (2) The 5th standard is not redundant.
  - (1) In order to show that the 5th standard is redundant, it is necessary to show that the first four standards encompass all that is contained in the 5th standard.
  - (1) Conversely, if it can be shown that the 5th standard adds to what is contained in the first four standards, then the 5th standard is not redundant.

The director of internal audit, in properly managing the internal audit department, is responsible for such activities as:

- providing written policies and procedures to guide the audit staff;
- establishing a program for selecting and developing the human resources of the internal audit department;
- (1) coordinating internal and external audit efforts.
- (1) Since none of these three activities are included in the first four standards, this implies that the 5th standard is not redundant.

NOTE: Up to a maximum of 10 marks.

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- 10 Q.5 Source: Lesson Notes, No.6.
  - (2) i) Whether cash flow projections are prepared and used, in order to meet current cash flow obligations.
  - (2) ii) Whether cash flow projections are reasonably accurate, based on actual cash flows,
  - (2) iii) Whether treasury personnel ensure the availability of funds to meet "float" requirements, e.g., cheques issued to the payroll clearing account,
  - (2) iv) Whether automatic banking services are used to transfer funds from regional bank accounts,
  - (2) v) Whether accounts are collected on time and deposited on a timely basis,
  - (2) vi) Whether accounts are paid no earlier than necessary,
  - (2) vii) Whether surplus funds are invested in keeping with corporate policy.

NOTE: Up to a maximum of 10 marks.

- 10 Q.6 Source: Lesson Notes, No. 10.
  - (2) F Financial Controls an evaluation of the controls over revenues, expenditures, assets and liabilities, including the organization of financial function and its place in the general management structure. This evaluation goes beyond the normal evaluation of internal control and calls for reviewing the qualifications and suitability of financial personnel to the needs of the organization; the appropriateness of the accounting systems and procedures; and the appropriateness and adequacy of budgeting and financial reporting systems.
  - (2) R Reporting an evaluation of the nature, content, adequacy, reliability and timeliness of financial and related nonfinancial information presented in reports. The non-financial information referred to includes reporting on performance indicators - this reaches considerably beyond reporting on the traditional profit measure.

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- (2) A Attest and Authority the expression of an opinion of financial statements and the verification of parliamentary, governmental, and other authority for expenditures. Comprehensive auditing may include attesting to broader reports, those including performance indicators, and the authority aspect may receive greater focus because of the trust nature of funds in government and not-for-profit organizations.
- (2) M Management Control an evaluation of the system of management information and controls, including the internal audit/evaluation/review functions, to ensure due regard to economy, efficiency, and effectiveness in short, value-for-money auditing.
- (2) E EDP Controls an evaluation of controls over financial and other information processed by computers and of management controls over the use of computer-related resources.

NOTE: 1/2 mark for identifying each of the headings (e.g., F = Financial Control) and 1 1/2 marks for the description.

- 14 Q.7 Source: Text pp. 348-51 and Lesson Notes, No. 9.
  - (4) (a) The following points could be pointed out to the junior auditor:
    - (3) The sales forecast is crucial to the overall corporate planning process, in that it outlines the general area in which the company expects to operate.
    - (1) Operating and capital budgets are determined on the basis of expected sales levels.
    - (1) The circumvention of possible corporate problems is directly linked to the reliability of the sales forecast.

NOTE: Up to a maximum of 4 marks.

(10) (b) (a) iv (b) ii (c) v (d) iii (e) i (f) v

(g) iii (h) v (i) ii (j) iv (k) i (l) ii

(m) v (n) iii (o) i (p) v (q) i (r) v

(s) iv (t) ii (u) iii

NOTE: 1/2 mark for each of the 21 items correctly identified, up to a maximum of 10 marks.

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- 16 Q.8 Source: Text p. 309 and Lesson Notes No.7.
  - (1) How do the real needs for inventory, as shown by manufacturing and/or sales records, compare with the stock levels that are actually being maintained?
  - (1) Is there a clear correlation between the purchase of raw material parts and supplies and the production or sales requirements?
  - (1) Is the movement of material logical?
    Does it follow a pattern which minimizes:
  - (1) (a) the number of handlings;
  - (1) (b) the number of intermediate storage points; and
  - (1) (c) the distances moved?
  - (1) Can materials be readily found?
  - (1) Are they well marked when on the floor?
  - (1) Are storage and production areas set up in such a way as to provide for the easy identification and movement of materials?
  - (1) Do stockrooms, warehouses, and factory aisles appear crowded or congested?
  - (1) Is it necessary to close down departments frequently because of a shortage of parts or raw materials?
  - (1) Are materials and supplies being specified in grades which are unnecessarily high in view of the purpose for which they are intended?
  - (1) What steps are being taken to make certain that the quality of materials and supplies meets purchase order specifications?
  - (1) Is the testing program effective and practical?
  - (1) Are there alternate sources of supply for critical materials and supplies, a shortage of which would shut down the plant?
  - (1) In the maintenance stores, are there spare parts for equipment whose breakdown could shut down the plant?

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- (1) Is there an excessive number of such parts?
- (1) Are inventories reviewed periodically for obsolete or surplus items?
- (1) If so, when was the last review carried out and what was the result?
- (1) Are contemporary approaches being followed with regard to writing off, on acquisition, the costs of repair parts which are of small value?
- (1) Is there free issue of those repair parts and supplies which are of small value or is there over-control?
- (1) How accurate are the calculations which are made in determining the amounts of bulk materials consumed?
- (1) In the case of large inventories of bulk materials, are there mathematical estimates of the precision of the physical and "book" quantities which can be used in resolving inventory differences?
- (1) Is there any appreciable amount of scrap or damaged materials which results from poor packing by the supplier or from poor handling within the plant?
- (1) Are the inventories adequately insured against loss through fire, theft, water damage, or other causes peculiar to the products?
- (1) Is inventory records maintenance segregated from physical control of inventory?
- (1) Is there physical security for the protection of inventory?
- (1) Where applicable, have appropriate steps been taken to protect the inventory against spoilage or damage from fire, humidity or similar hazards?
- (1) Is there authorization and control over inventory acquisition (e.g., purchase requisition approval and purchase order issuance)?
- (1) What is the Receiving Department's process for documenting and controlling goods received, with respect to purchase orders and suppliers' invoices?
- (1) What method of inventory valuation is used (e.g., FIFO, LIFO, etc.)?

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- (1) What are the criteria for re-ordering decisions (e.g., EOQ)?
- (1) Are perpetual inventory procedures used to maintain stores records and to ensure accounting control of the physical stocks?
- (1) Is there a clear relationship between perpetual inventory and periodic inventory, with corresponding adjustments to general ledger?

NOTE: One mark for each item, up to a maximum of 16 marks.

100

END OF SOLUTIONS

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#### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# AUDITING 567 EXAMINATION March, 1985

Marks Time: 3 Hours

- 12 Q.1 The basic components of a system are:
  - its inputs,
  - the processor, and
  - its outputs.

In order for management to have an effective system, it has to have been designed, be in operation and be subject to control. A typical control system should be comprised of four basic subsystems (or elements).

#### REQUIRED:

List the <u>four</u> basic subsystems (or elements) of a typical control system and describe the function of each.

4 Q.2 The primary aim of management control is to create an atmosphere which is broadened, not narrowed by the controls. Controls may be classified into two general categories: (i) preventive controls, and (ii) detective controls.

# REQUIRED:

Define these two controls and give one example of each.

10 Q.3 The computer can prove to be invaluable in the performance of basic audit functions for EDP-Based Systems. By utilizing the computer to this end, audit efficiency can be significantly improved.

#### REQUIRED:

Outline  $\underline{\text{five}}$  basic audit functions which can be performed by the computer that will improve the efficiency of an audit.

10 Q.4 You are planning a management audit of the inventory control function in a large manufacturing firm. You discuss with the chief accountant what inventory control involves for the accountant, and how this should correspond with inventory control as viewed by the stores supervisors and production controllers in your company. The chief accountant states the opinion:

"Inventory control as viewed by the accountants should mean the same thing as viewed by the stores supervisors and production

Continued...
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controllers in the corporation." You decide to prepare a response to that opinion.

# REQUIRED:

- (5) (a) In point form, list what "inventory control" generally involves for the accountant.
- (5) (b) In point form, list what "inventory control" generally involves for the stores supervisors and production controllers.
- 10 Q.5 Assume that you have just completed a major internal management audit and are about to commence the writing of your report.

#### REQUIRED:

Summarize, in point form the basic steps you should follow in preparing and issuing your report.

16 Q.6 Assume that you are the head of the internal auditing department in a fairly large organization and are developing the plan for the annual audit program (i.e., audit coverage). To serve the entire management structure, it is apparent that you cannot devote all of your attention and audit resources to one section or aspect of the organization to the exclusion of the others. Given that the economic resources available to an internal auditing department are necessarily limited and must be utilized effectively, you must take into consideration certain factors in deciding what you are going to audit.

# REQUIRED:

List the factors (with one supporting reason for each factor) that should be considered for an annual audit program when determining what you are going to audit.

16 Q.7 As an internal auditor, before you can satisfactorily complete the audit of physical plant, you should carry out a management review of the entire function of providing the organization with its capital assets.

#### REQUIRED:

Prepare a list of questions which an auditor should develop when conducting a management review of physical plant and equipment.

#### 12 Q.8 In your course it was stated that:

"Formalized control mechanisms can be classified as:

- organizational controls,
- authorization as a control, and
- control through accounting systems."

In this context it was further implied that:

"In order to hold a person responsible for the activities of an entity, complete factual information about the entity's operation must be made available to that person."

### REQUIRED:

In point form, list the key features of control through accounting systems which satisfy the requirement of complete and factual information about an entity's operation. Give a brief explanation of each of the key features.

10 Q.9 The following questions relate to "Standards for the Professional Practice of Internal Auditing". For each item, read all of the alternatives carefully. Select the best answer for each question and write your answer in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for question (a), write (a)(i) in your examination booklet. If more than one answer is given, that question will NOT be marked. Wrong answers will be graded as zero and no marks will be deducted. No account will be taken of any explanations you offer.

### NOTE: 1 mark each.

- (a) INDEPENDENCE of the Internal Auditors within an organization is necessary to permit the accomplishment of their responsibilities. Generally, this situation can best be assured by:
  - i) the number and size of the internal auditing staff.
  - the organizational status of the internal auditing ii) department.
  - iii) the knowledge about EDP operations which exists among the internal auditing staff.
  - the physical location of the internal auditing iv) department's office and facilities.
  - the demographic characteristics of the internal v) auditing staff.

### (b) PROFESSIONAL PROFICIENCY is:

- i) the responsibility of the internal auditing department.
- ii) the responsibility of each internal auditor.
- iii) achieved when the audit team collectively possesses the necessary knowledge, skills and discipline to conduct the audit properly.
- iv) defined by all of the above statements.
- v) defined by only statements (i) and (ii).
- (c) Within the Standards for the Professional Practice of Internal Auditing, the term INTERNAL AUDITING DEPARTMENT includes:
  - i) any unit or activity within an organization which performs internal auditing functions.
  - ii) only that unit specifically designated as the "Internal Auditing Department" in the organization.
  - iii) the external auditing activities conducted by third parties.
  - iv) both (i) and (iii) above.
  - v) none of the above.
- (d) Within the Standards for the Professional Practice of Internal Auditing, the term BOARD includes:
  - i) the board of directors of corporations.
  - ii) the audit committees of the board of directors of corporations.
  - iii) the heads of agencies or legislative bodies to whom the internal auditors report.
  - iv) all of (i), (ii), and (iii) above.
  - v) only (i) and (ii) above.
- (e) Internal auditors should be objective in performing management audits. Which of the following statements is <u>least</u> accurate regarding OBJECTIVITY?
  - Objectivity is an independent mental attitude which internal auditors should maintain when performing audits.
  - ii) Staff assignments of internal auditors should be rotated.
  - iii) Management may on occasion direct internal auditors to perform non-audit work but must indicate that they are not functioning as internal auditors.
  - iv) Internal auditors should report any situation in which a conflict of interest or bias is present or may reasonably be inferred.
  - v) Persons transferred to the internal auditing department should never be assigned to audit those activities they previously performed.

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- (f) When an audit team has exercised DUE PROFESSIONAL CARE in the performance of an internal audit you expect that:
  - i) they have conducted detailed audits of all the transactions within the organization subjected to the audit.
  - ii) suspected wrongdoings were reported to the appropriate authorities within the organization and that follow-up on audit recommendations will be conducted.
  - iii) the established operating standards of the organization were examined only when wrongdoings were suspected.
  - iv) irregularities and non-compliance are non-existent within the organization subjected to the audit.
  - v) all of (i), (ii), (iii), and (iv) above are correct statements.
- (g) The OBJECTIVE of internal auditing is to assist members of an organization in the effective discharge of their responsibilities. To this end, internal auditing furnishes management with:
  - i) an analysis of the activity being reviewed.
  - ii) an appraisal of the activity that was reviewed.
  - iii) recommendations, information and counsel as to how the activity being reviewed may be enhanced.
  - iv) all of (i), (ii), and (iii) above, even though
     internal auditing is a staff function.
  - v) none of the above, since internal auditing does not have any direct line responsibilities for the operations which it reviews.
- (h) With respect to the ECONOMICAL AND EFFICIENT USE OF RESOURCES, which of the following statements is false?
  - i) Internal auditors are responsible for setting the operating standards to measure an activity's economical and efficient use of resources.
  - ii) Internal auditors are responsible for determining whether operating standards have been established for measuring economical and efficient use of an activity's resources.
  - iii) Audits related to the economical and efficient use of resources should identify such conditions as overstaffing or understaffing.
  - iv) Audits related to the economical and efficient use of resources should identify such conditions as procedures which are not cost justified.
  - v) Internal auditors are responsible for determining whether deviations from operating standards are identified.

Continued...
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- (i) With respect to the MANAGEMENT of the internal auditing department which of the following statements is false?
  - i) The director of internal auditing should coordinate the internal and external audit efforts of the organization.
  - ii) The director of internal auditing should establish a program for selecting and developing human resources of that department.
  - iii) There should be a statement of purpose, authority and responsibility for the internal auditing department.
  - iv) The director of the internal auditing department should establish a quality assurance program to evaluate the operations of the internal auditing department.
  - v) The audit committee should provide written policies and procedures to guide the internal audit staff.
- (j) The term PROFESSIONAL PROFICIENCY as it applies to an internal audit department's staff includes:
  - the existence of a program whereby the internal auditors maintain their competence through a continuing education program.
  - ii) an expectation that the internal auditors within the department are skilled in dealing with people and can communicate effectively.
  - iii) a requirement that the internal auditors within the department know and comply with professional standards of conduct.
  - iv) only (ii) and (iii) above.
  - v) all of (i), (ii) and (iii) above.

100

END OF EXAMINATION

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CAHADA

## MARCHEST AUDITING 567 ELECTION March, 1985 EXAMINER'S

### General

Results were very encouraging and indicated that most students were familiar with all the material examined. There were isolated cases of "memory dumping" -- i.e., inclusion of redundant material not relevant to question requirements. This technique does not enhance answers or gain extra marks, but does waste the student's time unnecessarily.

### Specific

- Q.1 Most students received at least eight marks on this question since they identified the four subsystems and wrote a brief description of each one. A large percentage of papers added examples of each component, but normally an example was not sufficient by itself to explain the component.
- $\mathbb{Q}^{2}$  This question was very well done and a majority of students received full marks on it.
- Q.3 This question required that the student outline five basic audit functions which could be improved by the computer. In many instances it was not answered correctly: instead, large numbers of application examples of computers to various audit areas were listed and discussed. For instance, it was stated that computers applied to inventory, accounts receivable, fixed assets and/or accounts payable auditing. There are good examples but were not an answer to the required aspect of the question. These answers were extremely redundant and there were several instances were the answers contained paragraphs of discussion as to why CAAT's were beneficial to the auditor.
- Q.4 The responses to this question included many instances where the accountant's points on inventory control were listed as those applicable to the stores supervisor's and production controller's-and vice versa.
- Q.5 This question was handled very well. A few students listed the components and/or specific aspects of an audit report itself. This was not actually required -- only the basic steps of preparing and issuing an audit report, and not the details of a report.
- Q.6 As the solution indicates, very few marks were allocated for factors on the internal audit department's constraints, available audit staff, audit staff capabilities, such as budget limitations and audit time to accomplish the entire audit plan. If an answer only listed these items, it would score low because the information in the question had already indicated that these internal economic resources were limited. See the suggested solution for the factors that were required for high marks.

- Q.7 Many students seem to have assumed that a management review of physical plant and capital assets was limited to the capital budgeting and acquisition processes. This is not the case (as the solution reflects), so many only received the marks applicable to this aspect of the entire process of auditing this class of assets.
- Q.8 This may have been the most difficult question on the examination since most answers were only obliquely related to the solution. However, a good proportion of students still obtained full marks.
- $^{\circ}$  The average score on these multiple choice questions was about 7 marks indicating that most students knew the material to which they related.

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

# ANA AUDITING 567 EXAMINATION March, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 Q.1 Source: Text pp. 125-126 and 171-173, Lessons 3 and 4.

The four basic subsystems (or elements) of a control system are as follows:

- (1) A control object or the variable to be controlled.
- (1) The most important consideration in the design of a control system is the variable that is to be used for monitoring and control, because variation in this variable - the "control object" - triggers the functioning of the control (or correction) system.
- (1) Great care must be given to "what must be controlled".
- (1) A detector or scanning subsystem.

A management information system (MIS) is a detector which:

- (1) selects specific data/information,
- (1) organizes it,
- (1) passes it along to the comparator.
- (1) A comparator.
- (1) The comparator compares the magnitude of the control object (as reported by the detector) with the predetermined standard or norm.
- (1) This stage also incorporates a judgment on when the deviation has reached the point where corrective action is to be taken.
- (1) A key feature of the entire system is the setting of its level of sensitivity - the size of deviation necessary to trigger action.
- (1) The MIS often includes the comparator element in the form of budgeted amounts and the computed variance.

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- (1) Some information systems go a step further and indicate those variances which are above the pre-established threshold for action.
- (1) An activator.
- (1) The activator evaluates the several alternative courses of corrective action that might be taken under the current circumstances.
- (1) The benefits of restoring the system to its desired norm are weighed against the cost of doing so.
- (1) Included in this evaluation might be an examination of the accuracy of the operation of the detector and comparator and the currently judged feasibility of pursuing the goal for the system.

NOTE: Up to a maximum of 12 marks.

4 Q.2 Source: Text p. 152, Lesson 4.

Preventive controls and detective controls can be distinguished as follows:

### Preventive controls.

- These seek to prevent the occurrence of some irregularity or error.
- (1) Examples are: the checking of sales invoice prices and extensions by a second clerk in which the purpose is to prevent the issuance of an incorrect invoice; providing clerks with procedure manuals and instructing them in work.

### Detective controls.

- (1) These seek to detect those errors or irregularities that did occur in spite of any preventive controls.
- (1) Examples are: checking that all sales/shipping orders have in fact been billed to detect any shipments that were not billed; checking the total value of, say, cheques issued by a computerized system with an independent input control in the source department to detect any loss of data or injection of spurious, unauthorized data.

- 10 Q.3 Source: Lesson 5, p. 5:7.
  - The auditor can improve the efficiency of the audit by utilizing the computer to:
  - (2) extract sample transactions from a file (these could be random samples or a block of transactions);
  - (2) extract transactions or balances having certain defined characteristics, such as value, date, etc.;
  - (2) rearrange a file into a suitable order for a particular audit enquiry;
  - (2) compare similar data in two files (this could be used to check pay rates with rates authorized for specific jobs or employees);
  - (2) print confirmation requests, trial balances, and the like; and
  - (2) re-perform mathematical calculations.

NOTE: To a maximum of 10 marks.

- 10 Q.4 Source: Text p. 296, Lesson 7.
  - (5) (a) In order to maintain control over inventory, the accountant is concerned with the following points:
    - Procedures and records designed to keep track of materials that are either bought or manufactured.
    - (1) Precautions to make certain that these materials are not stolen or misappropriated.
    - (1) Procedures for receiving material and for reporting the quantities received so as to authorize payment of the supplier's invoices.
    - (1) Procedures to ensure proper recording of consumption.
    - (1) Perpetual inventory records.
    - (1) Procedure for taking physical inventories.
    - (1) Policies for the valuation of inventories.
    - (1) Procedures for damaged and/or obsolete inventories.

NOTE: To a maximum of 5 marks.

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- (5) (b) Conversely, the stores supervisors and production controllers would focus on the following items:
  - (1) Maintenance of stock at levels adequate to back up customer orders and production plans.
  - (1) Lead time in ordering from suppliers.
  - (1) The effect of manufacturing budgets on stock position.
  - (1) Stock levels needed to meet forthcoming delivery schedules.
  - (1) Procedure to show what quantity of an individual item is in stock.
  - (1) --- Where it is.
  - (1) --- What its consumption pattern has been.
  - (1) --- What its consumption patterns are expected to be.
  - (1) --- What quantity to order.

NOTE: To a maximum of 5 marks.

### 10 Q.5 Source: Lesson 10, p. 10:5.

The basic steps to be taken in preparing an internal audit report are as follows:

- (1 1/2) Consider the original purpose of the audit in the light of actual audit findings and decide on the purpose of this report.
- (1 1/2) Assemble the relevant facts making sure that you have all the necessary facts and that you have full information on all facets of each situation.
- (1 1/2) Draft the report, going through as many versions as you and/or your assistants and superior(s) feel are necessary to produce a report that they are prepared to release outside the audit department.
- (1 1/2) Review this draft report with the auditee and note all of the comments.
- (1 1/2) Amend the draft report or otherwise add appropriate references to auditee comments.

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- (1 1/2) Review and polish the draft into final form and prepare the required number of copies.
- (1 1/2) Issue the report to the designated recipients (based on the established policy regarding report distribution).
- (1 1/2) Make sure that the auditee receives a copy of the report before his/her superior.

NOTE: To a maximum of 10 marks.

16 Q.6 Source: Text pp. 254-55, Lesson 2.

In deciding what is to be audited, the internal auditor should consider the following factors:

- (1) Large expenditures or receipts.
- (1) The biggest paybacks are usually in areas in which the greatest number of dollars are spent or received.
- (1) This measure also serves as a yardstick for estimating how much time should be spent at a given location.
- (1) Low profits or low returns on assets used.
- (1) These two conditions usually indicate the presence of problem areas.
- (1) Functions which are critical to the success of the business.
- (1) These functions do not necessarily require large sums of money and therefore will not always attract attention on those grounds.
- (1) Such functions, for example, purchasing, quality control, and personnel, often exercise control over large amounts of a company's assets or profits. Either that, or they greatly influence the actions of others who, in turn, spend large amounts of money.
- (1) Functions which have never been audited before.
- (1) These are often prime targets for review and such reviews help the audit department to grow in knowledge and experience.

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- (1) Divisions recently created or subsidiaries recently acquired.
- (1) These should be reviewed at an early date so that problems can be spotted and corrected as early as possible.
- (1) Specific request from corporate or division managers.
- (1) These requests, which constitute evidence of acceptance of the audit department, should be given high priority and should be carried out with extra care and thoroughness.
- (1) Problem areas spotted during a current audit.
- (1) An audit of one function or department frequently discloses problems in other company units. These should be noted for future attention.
- (1) Follow-up audits and repeats of previous audits.
- (1) It is often necessary to check back on the highlights of an audit in order to be certain that the agreed-upon corrective action has actually been taken and is, in fact, a satisfactory solution to the problem.
- (1) Apart from short-term follow-ups, recurring audits of the same function or division should be scheduled at intervals, depending on the nature of the operation, the strength of the controls, and the results of previous reviews.

**NOTE:** To a maximum of 16 marks, 1 mark for each factor and a maximum of 1 mark for a supporting reason for each factor.

16 Q.7 Source: Text p. 326, Lesson 8.

The internal auditor should consider the following questions in performing the management review of the physical plant.

- (1) How does the ratio of capital assets to total assets (and to net profit) compare with the industry?
- (1) How does it compare with that of competitors?
- (1) How does the ratio of accumulated depreciation to gross fixed assets compare with industry averages, and with other companies in the same industry?

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- (1) Do the foregoing statistics indicate that the company's plant is older or younger than the industry average?
- (1) What is the significance of this situation now and in relation to the future?
- (1) Is the company keeping abreast of technological improvements?
- (1) Does the annual expenditure for new plant and equipment appear to be too low (or too high)?
- (1) Are capital assets being retired before they are fully depreciated?
- (1) Is new equipment always warranted?
- (1) Is the life expectancy of new equipment frequently underestimated due to rapid obsolescence?
- (1) Are the forecast profit improvements (which are the basis for the budget appropriation) actually being realized?
- (1) Are studies being made of actual performance and submitted to management?
- (1) Are there instances of plant and equipment standing idle?
- (1) If so, what are the carrying costs?
- (1) Could these idle facilities be put to some use?
- (1) Why are they idle?
- (1) Could they be leased or sold?
- (1) When is it expected they will again be active?
- (1) Are capital assets being adequately accounted for, maintained, protected from theft or damage, technically updated and insured?
- (1) Are local safety ordinances being observed?
- (1) When was the plant last inspected for possible safety hazards?
- (1) What was the result of these inspections?
- (1) When was the last insurance underwriter's inspection?
- (1) If so, what recommendations were made by the underwriter?
- (1) and; have the underwriter's recommendations been carried out?

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- (1) How does the company's capital budget provide for selection of new assets? (i.e., Does it employ ROI, benefit cost analysis, or discounted cash flows to rank order the choices?)
- (1) If facilities are constructed what is the work order authorization and control procedure for this process?
- (1) Does the company explore the lease alternative as an option in lieu of purchasing or building new facilities?
- (1) What is the procedure to ensure that new facility acquisitions are warranted and approved before they are bought?

NOTE: To a maximum of 16 marks.

12 Q.8 Source: Text p. 153-158, Lesson 4.

The key features of control through accounting systems are as follows:

- (1) i) Initial Recording of Transactions.
- (2) This ensures that transactions that are "captured" (initially recorded) are neither lost nor altered in the data processing operations, whether manual or automated.
- (1) ii) Use of Responsibility Centres.
- (2) The code and reporting system are so designed as to bring together on one report all information pertinent to each individual entity. Normally, this is on the basis of items of income and expense for which the manager of the entity is responsible. Hence, this approach is called "responsibility accounting".
- (1) iii) Classification of Transactions.
- (2) Transactions are classified according to a comprehensive coding system based on a general ledger chart of accounts.
- (1) iv) Audit Trail.
- (2) It must be possible to trace a source transaction through to the figure on a report which contains it. Similarly, it must be possible to expand any figure on a report into its individual components.
- (1) v) Balancing and Reconciliation Routines.
- (2) Transactions are sorted and summarized by systems which provide assurance of accurate distribution and mathematical precision.

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- (1) (vi) Cut-off Routines.
- (2) Reports are complete and accurately compiled from the records. The time lapse should be as short as possible between the effective or cut-off date for the recording and reporting, and the actual issurance of the reports.

NOTE: To a maximum of 12 marks, 1 mark for each key feature and up to a total of 6 marks for the explanations of the key features.

10 Q.9 Source: Lesson 1, Appendix III.

NOTE: 1 mark each.

- (a) ii)
- (b) iv)
- (c) i)
- (d) iv)
- (e) v)
- (f) ii)
- (g) iv)
- (h) i) (i) v)
- (j) v)

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IMD OF SOLUTIONS

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

### MANAGEMENT AUDITING 567 EXAMINATION June, 1985

Marks Time: 3 Hours

- 12 Q.1 An internal auditor should study the policy and procedure manuals, other management directives, and externally imposed regulations to determine those requirements where compliance by the auditee is important. In order to find evidence indicating whether a requirement is being complied with, the internal auditor must apply appropriate audit procedures. Three mutually exclusive situations which an internal auditor might have to test for compliance, are as follows:
  - Situation 1: A minimum of three competitive quotations must be obtained for all purchases over a stipulated value; contract to always be awarded to the supplier submitting the lowest quote.
  - Situation 2: Totals of computer load runs must agree with control totals abstracted from source documents and maintained in records in the source department-independent of the data centre.
  - Situation 3: Policy which requires that year-end inventory be priced at lower of cost or market.

### REQUIRED:

Briefly state the audit procedures which an internal auditor should perform for each of the above mutually exclusive situations in order to test for compliance.

- 16 Q.2 Management auditing by its nature requires one to be familiar with general management functions.
  - (4) (a) Two key management functions are planning and control, the accomplishment of which is evaluated during the audit of an organization.

### REQUIRED:

Explain why planning and control as key management functions are of concern in a management audit.

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- (9) (b) In the course materials the management process was summed up by the means of a diagram which contained the following major activities:
  - planning,
  - implementing the plans,
  - measuring the output,
  - comparing the output with the plan, and
  - revising the plans if necessary.

Some of the above activities were further delineated with  $\operatorname{sub-steps}$ .

### REQUIRED:

List the sub-steps, where applicable, for each of the above activities in the management process.

(3) (c) Management control could be defined as the process used by the board of directors to maintain a high level of production by company employees.

### REQUIRED:

State whether you agree or disagree with the above definition of management control and give reasons to support your position.

9 Q.3 The auditing of cash and bank balances for compliance with company policies and procedures necessitates that the auditor conduct more extensive work than just the examination of internal control.

### REQUIRED:

List ten areas regarding the handling of cash and bank balances where auditors could check for compliance with policies and procedures.

10 Q.4 When conducting an internal audit of the inventory function, the auditor must be concerned with the inventory level being maintained by the organization. This requires the auditor to weigh the reasons for carrying inventory against the alternative of not carrying inventory.

Assume that during an audit, you have decided that the inventory level for the organization is too high and are planning your discussion with the auditee about your conclusion.

### REQUIRED:

- (5) (a) List the reasons which an auditor should consider that would justify maintaining an inventory at a given level.
- (5) (b) Present some of the alternatives that might be considered in lieu of maintaining an inventory at a given level (i.e., no inventory).
- 12 Q.5 Large construction contracts are usually one of two types; namely, lump-sum fixed price construction contracts, and costplus construction contracts. In the case of a cost-plus construction project the internal auditor's basic responsibility is to define the necessary control measures and audit steps to be performed, and to oversee the whole job. Furthermore, in order to ascertain that the conditions of a cost-plus contract have been complied with, the internal auditor must be constantly alert for inappropriate charges to the project and the omission of credits to which the project is entitled.

### REQUIRED:

In order to ascertain that the conditions of the cost-plus contract have been complied with, list the irregularities the internal auditor should be concerned with in an examination.

6 Q.6 Comprehensive auditing in the public sector is designed to review and report on the management of financial, human and physical resources, so as to provide the greatest possible degree of accountability in the expenditure of public funds. The key characteristics of comprehensive auditing are that it is coordinated, cyclical, and constructive.

### REOUIRED:

Define the meaning and application of the words (i) coordinated, (ii) cyclical and (iii) constructive as they relate to comprehensive auditing.

- 11 Q.7 One of the steps in the overall process of evaluating internal controls is to obtain a description of the system. Four techniques for describing a system are to:
  - i) conduct tests of transactions;
  - ii) complete an internal control review questionnaire;
  - iii) prepare a narrative description of the system; and
  - iv) prepare a flow chart of the system.

### REQUIRED:

Indicate your understanding of the above four techniques by listing the relative merits of each.

### REQUIRED:

Choose <u>seven</u> of the above features and in <u>point form</u> describe how they apply to the two types of auditing. Present your answer in the following format:

FEATURE EXTERNAL AUDITING INTERNAL AUDITING

NOTE: If you list more than seven features, only the <u>first seven</u> features will be marked and those features in excess of seven will not be marked.

10 Q.9 Select the best answer for each of the following unrelated items. Answer each of these items in your examination booklet by giving the number of your choice. For example, if (i) is the best answer for item (a), write (a)(i) in your examination booklet. Select only one answer for each item. If more than one answer is given, that item will NOT be marked. Wrong answers will be graded as zero and no further marks will be deducted. No account will be taken of any explanations you offer.

NOTE: 1 mark each. For each item, read all of the alternatives carefully.

- (a) In the post-implementation review of an installed EDP project, the internal auditor has an important role to play. Which of the following best describes that role?
  - i) The internal auditor should determine that the EDP programs are working correctly.
  - ii) The internal auditor should ascertain that there is a requirement for a post-implementation review and that it is carried out accurately.
  - iii) The internal auditor should see that management is taking appropriate action to correct the deficiencies and weaknesses disclosed by the post-implementation review.
  - iv) All of (i), (ii), and (iii) above.
  - v) Only (i) and (ii) above.
- (b) In his article "The Use of Computer-Assisted Audit Techniques", J. E. Boritz pointed out that traditionally "... both external and internal auditors have been reluctant to explore the wide audit capabilities of computers...". Boritz then listed four reasons why the auditors were reluctant. Which one of the following is not a reason listed by Boritz?
  - i) The auditors lacked capable staff.
  - ii) The auditors believed that computers prevented (or lessened) the use of professional judgment.
  - iii) The number of capable staff members was too small.
  - iv) The auditors were not imaginative enough to develop the requisite new audit techniques.
  - v) The auditors did not know how to use computer assisted audit techniques.

- (c) In B. A. Roderick's article entitled "How to Audit the Efficiency and Economy of Computer Systems", he offers a simple rule of thumb for recognizing when use of a computer system may NOT be optimized. Which of the following statement(s) best reflects Roderick's rule of thumb?
  - i) A computer system's use may NOT be optimized when any of its utilization statistics are less than 50% or more than 80%.
  - ii) A computer system's use may NOT be optimized when any of its utilization statistics are less than 80%.
  - iii) A computer system's use may NOT be optimized when it could be replaced by a less expensive manual system.
  - iv) Both (i) and (iii) above are correct statements
     regarding Roderick's rule of thumb.
  - v) Both (ii) and (iii) above are correct statements regarding Roderick's rule of thumb.
  - (d) Which of the following questions does (do) <u>not</u> belong in the Data Input Section of the Internal Control Questionnaire of the EDP Function and Computer Operation?
    - i) Are data input edited prior to production runs?
    - ii) Are controls over master file changes adequate?
    - iii) Are revised programs adequately tested with test data before they are used?
    - iv) Questions (i), (ii), and (iii).
    - v) Questions (ii) and (iii).
  - (e) Which of the following sets of controls is NOT a principal internal control in connection with the use of EDP?
    - i) Controls provided by documentation of systems, programs and operating instructions.
    - ii) Controls provided by the audit committee.
    - iii) Controls provided over the actual processing of data through the input, computer processing and output phases.
    - iv) Controls provided by organizational means within the data centre, such as restricting access to the computer.
    - v) Controls exercised by the user departments to provide independent control figures with which the outputs of the data centre must agree.

- (f) With respect to approved EDP projects, the computer committee should require that a review of the project be conducted at a reasonable and appropriate time after installation. The purpose of such a review is:
  - to see whether the project did accomplish its objectives as set out in the project proposal.
  - ii) to see whether the project was completed on time and within budget.
  - iii) to seek out areas where performance did not come up to expectations.
  - iv) all of the above.
  - v) only (i) and (ii) above.
- (g) M. J. Cerullo argues that control and security measures for on-line real-time (OLRT) computer systems are generally found at a number of control points. These control points are:
  - i) terminal controls and audit trail controls.
  - ii) access controls and transmission line controls.
  - iii) both (i) and (ii) above.
  - iv) terminal controls and management controls.
  - v) audit trail controls and transmission line controls.
- (h) In reviewing internal control of the EDP Function and Computer Operation, a junior auditor asked the following two questions:
  - Is the data centre independent of systems and programming functions?
  - Is there a control function independent of the computer operating group?

Upon reading the above (two) questions, an experienced management auditor would conclude that:

- the junior auditor is involved in reviewing data storage.
- ii) the junior auditor is reviewing the internal control for data input and processing controls.
- iii) both (i) and (ii) above are correct.
  - iv) the junior auditor is only dealing with the organization/general administration section of internal control in the EDP function.
  - v) the junior auditor is only reviewing the systems/program section.

- (i) Which of the following statements is most accurate with respect to the basic steps of selecting, designing or implementing an EDP project?
  - i) The internal auditor is not normally directly responsible for any of these basic steps.
  - ii) All of the basic steps should be carried out by line managers, members of the staff of the user department(s), and systems and EDP specialists.
  - iii) Both (i) and (ii) above.
  - iv) The internal auditor in conjunction with the line managers is responsible for these basic steps.
  - v) Only the EDP specialists are involved with those basic steps.
- (j) The internal auditor would expect to find that the establishment of overall policies and procedures regarding the use of EDP resources is the responsibility of a "computer committee" made up primarily of senior managers representing all major functions/divisions of the enterprise. This committee should be responsible for setting policies and procedures governing:
  - i) the overall budgets for systems development and EDP operations.
  - ii) the way in which proposals are to be presented to this committee for consideration.
  - iii) the yardsticks by which proposals will be evaluated and rated.
  - iv) only (ii) and (iii) above.
  - v) all of (i), (ii), and (iii) above.

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END OF EXAMINATION

### CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF CANADA

## MANAGEMENT AUDITING 567 EXAMINATION June, 1985 EXAMINER'S COMMENTS

### General

In general, performance on this examination was very good, indicating that most students had an excellent background and knowledge of the concepts of management auditing.

### Specific

- Q.1 With rare exception the marks in this question were at least ten or higher, indicating that all students have a good understanding of audit procedures and test compliance requirements for the situation to which this question was addressed.
- Q.2 (a) Most papers received four marks, but some did not explain the planning and control functions which were required to show why they were of concern to a management audit, and accordingly earn full marks on this question.
  - (b) Very few students listed all of the subsystems to the four major activities where they are applicable (there are not any substeps to "measuring the output"). Accordingly, the average paper earned only about four marks on this part of question 2.
  - (c) The correct answer to the definition of management control in the test was to "disagree" with it and, with rare exception, most students earned one mark for that response. On about forty percent of the papers, reasons to support this "disagree" position were not always to the specifics as shown in the suggested solution, resulting in less than the two marks allowed for this aspect of the required.
- The required to this question was to list specifically those areas Q. 3 regarding the "handling" of cash and bank balances. It was not required (and marks were accordingly not earned) that inquiries as to the economic and efficient use of cash be listed. In rare instances, a test paper was confined to the "handling" of cash and full marks were earned, with a sufficent one page answer. However, in a majority of cases students had some of the items relating to the "handling" of cash confused with some of the "not required" economic and efficient use of cash inquiries. These answers earned about four marks because they were not complete as to the handling of cash and bank balances. There was an occasional test paper where the answer was entirely addressed to the "wrong" required (i.e., economic and efficient use of cash) which appeared to be a "memory dump" of the solution to a question on the December 1984 examination which did require a list of inquiries vis-a-vis the management auditor's concern with the economic and efficient use of cash.

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- Q.4 (a) The required to this question was subtle and demanded some forethought to correctly comprehend. This may account for the many students who only earned three marks on this item. While it may have been difficult, it seems to have been a reasonable question, since about 20% of the students earned a full five marks on it. Occasionally students attempted to revise the required to fit their own interpretation of what it should be, and "flipped" the answer to 4(a) into an answer to 4(b), which did not earn any marks to 4(a), and could not be counted for an answer to 4(b) because of the way their answers were structured.
  - (b) Most students appeared to comprehend the required aspects vis-a-vis maintaining "no inventory" and an average of about three and a half marks were earned to this aspect of inventory level maintenance.
- Frequently the answers to this question identified a situation that could "lead up to irregularities" which the internal auditor should be concerned with when examining a cost-plus contract but they did not list the irregularities. Likewise, there were frequent examples where a student listed courses of action which should be taken to preclude irregularities without precisely listing the irregularities which were only alluded to. For the above reasons, an average of about five marks were earned by a majority of students. However, there were a few well answered responses which earned more than nine marks and an occasional twelve full marks did occur.
- Q.6 A majority of students earned only three marks to this question, because they only defined what these key words meant and did not elaborate on the application of the audit concepts to which the words were tied.
- Prequently the answers to this question explained, defined and listed the negative (demerits) of the four techniques for describing a system. The required to this question specifically asked that the merits of each technique be listed, so marks were not earned for nice, correct, but unnecessary comments. Fortunately, in most cases answers also listed at least one identifiable merit to each technique, so four marks was the common total earned on this question. In the suggested solution, you will note that the largest number of marks to this question was allocated to the internal control review questionnaires and the flow chart techniques. Very few students covered all of the merits to these two techniques, so a full eleven marks on this question was rare.
- Q.8 The performance on this question was very good for all students, and less than eleven marks were earned in only a few instances. This indicated a good level of knowledge about the similarities and differences between external and internal auditing by everyone who wrote the examination.
- Q.9 An average of five marks was earned on this question, with an occasional nine marks being achieved, indicating that, while the question was difficult, students did relate to EDP auditing concepts that were covered in the course.

### CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF CANADA

# MANAGEMENT AUDITING 567 EXAMINATION June, 1985 SUGGESTED SOLUTIONS

Marks Time: 3 Hours

12 Q.1 Source: Text p. 70.

The audit procedures the internal auditor would perform in order to test for compliance in each of the situations are as follows:

- (4) Situation 1: Pull the files for a sample of purchasing transactions in this category and look for documentary evidence that at least three quotations were obtained and that the lowest was accepted.
- (4) Situation 2: For selected test periods, check that totals of load runs and relative entries in the data centre control books do, in fact, agree with records in the source department. Enquire into any discrepancies. The auditor might also observe the control clerk in the source department checking the run totals to the independent control.
- (4) Situation 3: Select an appropriate sample of inventory items, obtain current prices from sources external to the auditee, compare with cost price (as recorded at time of acquisition), and see that the lower of the two has been used in valuing the inventory.
- 16 Q.2 Source: Lesson 3.
  - (2) (a) Planning is a key management function because it provides the criteria or performance goals by which the auditee's particular performance will be judged.
  - (2) Controlling is a key management function because it provides the essential monitoring activity by which performance is continually measured and compared with the plans (criteria) with a view to taking action to correct deviations.

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(9) (b) The sub-steps of the management control process are as follows:

### PLANNING

- Gather information on alternate courses of action.
- Select one course of action (= decision).
- Formulate a strategy.
- Develop overall goals and sub-goals for the enterprise as a whole and for its sub-units.
- Undertake tactical planning.

### IMPLEMENT THE PLANS

- Marshal the resources.
- Give instructions.
- Produce the expected output.

### MEASURE THE OUTPUT

- There are no substeps to this activity.

#### COMPARE OUTPUT WITH PLAN

- Seek explanations for variances.
- Take appropriate action under pre-determined conditions and decision rules.

### REVISE PLANS IF HIMITES AND

- Return to planning.

NOTE: 1 mark each to a maximum of 9 marks.

(3) (c) The stated definition is less than accurate because management control is generally thought of as a systematic effort by business management to compare performance to predetermined standards, plans, or objectives in order to determine whether performance is in line with these standards. Another purpose is to take any remedial action required to see that human and other corporate resources are being used in the most effective and efficient way possible in achieving corporate objectives.

NOTE: 1 mark for stating that the definition is less than accurate and 2 marks for the supporting reasons.

9 Q.3 Source: Lesson 6.

Access to cash funds should be restricted to the appointed custodian.

The custodian of cash funds should not be responsible for incompatible functions.

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There should also be careful assignment of all duties involving cash, banking and related operations in connection with accounts receivable and accounts payable to avoid incompatible combinations of functions.

Care should be taken in assigning "relief" cashiers or others who undertake responsibilities for cash and banking operations during vacations and peak periods, to avoid incompatible functions that would lead to a breakdown in internal control.

In the case of retail store operations, there should be sound, realistic policies on such matters as accepting personal or other cheques from customers in payment of merchandise they will take with them.

There should be published policies regarding authorizations required on disbursement vouchers.

There should be policies for the handling of cheques returned "NSF".

There should be requirements for periodic counts of cash funds by supervisors.

There should be requirements for review and approval of regular bank account reconciliations by supervisors.

Implementation of policies and procedures regarding transfer of funds, prompt depositing of receipts and timing of payments.

NOTE: 1 mark each to a maximum of 9 marks.

- 10 Q.4 Source: Text p. 303, Lesson 7.
  - (5) (a) The reasons for carrying inventory are as follows:

To provide service to customers throughout fluctuations in sales levels. This will assure customers of availability of product and back up unexpected sudden increases in sales.

To back up a definite or expected order.

To take advantage of favorable purchase prices.

To protect against unavailability of supplies due to strikes and damage to suppliers by storms, hurricanes, etc.

To facilitate the scheduling of production and to absorb the necessary production variances arising from economic run sizes or batch production.

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To speculate against price and cost changes.

To allow for errors in measuring (mostly bulk materials).

NOTE: 1 mark each to a maximum of 5 marks.

(5) (b) Some of the alternatives to carrying inventory, are as follows:

Buy materials from another source to avoid having to carry an inventory.

Buy materials from a source which can ship on a shorter lead time.

Buy the items on demand and re-sell without carrying an inventory.

Make the product on demand and/or acquire additional or more flexible production facilities.

Speed up shipment to avoid carrying stock at an outlying warehouse.

Lose business.

NOTE: 1 mark each to a maximum of 5 marks.

12 Q.5 Source: Text pp. 322-23 and Lesson 8.

In the audit of a cost-plus contract the internal auditor should be on guard against the following possible irregularities:

Material transferred from other jobs and charged to the project as new material.

Material transferred to another job without being credited to the cost-plus project.

Office or supervisory payrolls charged directly to the job. Under contract provisions, these are usually non-reimbursable overhead expenses.

Equipment rented and not used.

Equipment rented and used on some other job.

Charges for repairs to rented equipment which should have been charged to the owner.

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Payroll taxes charged in excess of actual amount payable, for example, payroll taxes in excess of prescribed individual limit.

No allowance given for credits or refunds to contractor for such items as refunds for good experience on workmens compensation assessment.

Charges for sick leave, holidays, vacations and other time not worked which should be absorbed by the contractor.

Duplicate billing for material.

Billing for material or equipment not delivered to the job.

Incorrect pricing for labor, material and equipment.

Incorrect calculation of additional costs on escalation provisions.

Cash discounts taken and not passed on to the company.

Percentage charges for such costs as overhead, profit and insurance applied to an incorrect base.

Rental charges for equipment exceeding the original cost of the equipment.

NOTE: 1 mark each to a maximum of 12 marks.

- 6 Q.6 Source: Lesson 10.
  - (1) Coordinated means coordination with the reliance on internal auditing to the maximum extent possible.
  - (1) The degree of reliance depends upon the extent and quality of internal comprehensive auditing.
  - (1) Cyclical means reporting on audit examinations annually, where appropriate, or at longer intervals depending upon the size and complexity of the organization.
  - (1) This results in more cost effective audits, gives management time for reasonable corrective action, and permits more effective review by governing bodies.
  - (1) Constructive means that it draws attention to underlying causes of weaknesses.
  - (1) It suggests to management lines along which improvements should be made, an important characteristic because of the broader scope of issues being examined, evaluated and reported on.

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11 Q.7 Source: Text pp. 166-70, Lesson 4.

### TESTS OF TRANSACTIONS

By testing transactions and accounting routines, the auditor learns something about how the system works.

If the testing is sufficiently extensive, the auditor may simultaneously satisfy the requirements for compliance and/or substantive testing.

### INTERNAL CONTROL REVIEW QUESTIONNAIRES

Well designed questionnaires can ensure that the need for key controls and control deficiencies will be brought to light.

General purpose questionnaires are relatively economical.

Standardized questionnaires to be applied to all of a large number of similar branch operations facilitate making comparisons between auditees.

Internal control questionnaires - particularly general purpose ones - provide an ideal "standard" against which to evaluate internal control.

### NARRATIVE DESCRIPTION

Unlike the above two techniques, the narrative description should provide the auditor with a description of how the various systems work.

### FLOW CHART

Flow charting is an efficient and effective way to portray and analyze a system.

It minimizes the amount of narrative explanation, particularly when standard flow charting symbols are used.

Flow charts illustrate the complexities of the system more clearly than does a verbal treatment.

Weaknesses in the system are usually perceived more easily by simply looking at a properly designed chart than by working through pages of written explanations.

A flow chart is far superior to any other device when it comes to explaining the deficiencies of a system to line personnel and showing how such deficiencies can be eliminated.

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Tends to highlight combinations of incompatible duties.

Shows clearly the source, handling and ultimate disposition of the separate copies of multi-part forms.

Facilitates visualizing the results of a particular step being omitted, a document lost at a particular point, or a specific error.

NOTE: 1 mark each to a maximum of 11 marks.

### 14 Q.8 Source: Lesson 1.

FEATURE	EXTERNAL AUDITING	INTERNAL AUDITING
Purpose of the audit.	(1) To render an opinion on a client's financial statements.	(1) To evaluate the effectiveness of all forms of controls and aid all levels of management in realizing enterprise goals.
Justification for the audit.	(1) Specified in business corporation act.	(1) Basically discretionary in the judgment of top management. Practically, management of a large enterprise would find it difficult to discharge its responsibility for the maintenance of adequate controls without an internal audit function.
Person(s) to whom the auditor is responsible and to whom the report is addressed.	(1) Owners of the enterprise (as distinct from managers).	(1) Senior management; reports also sent to the manager of the auditee unit.
Audit standards to which the auditor must adhere.	(1) GAAS	(1) GAAS plus IIA standards and standards set by the enterprise.

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### FEATURE

#### EXTERNAL AUDITING

### INFERRAL AUDITING

Performance standard of the auditee.

- (1) GAAP as reflected in income and position statements through which investors evaluate auditee's overall financial results.
- (1) Overall enterprise and auditee objectives, and performance standards for auditee operations set by upper and middle management along with GAAP where applicable.

Scope of the audit.

- (1) Mainly oriented to financial and supporting records necessary to express an opinion on published financial statements.
- (1) Any and all records and other sources of evidence necessary to evaluate the existence, efficiency and effectiveness of controls.

Frequency of the audit.

- (1) Usually annually but in the case of long-es-tablished clients with good controls detailed review of any given function can be scheduled on a two or three year cycle.
- (1) Periodic, but may vary widely depending on circumstances. Usually no external need to review any or all functions/units on any predetermined schedule.

Extent to which the auditor is liable.

- (1) Liable for negligence in carrying out audit to shareholders and to third parties under certain circumstances.
- (1) Normally, no legal liability for negligence in carrying out the audit, but poor auditing may fail to disclose transgressions by the enterprise or may fail to disclose costly substandard performances.

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### FEATURE

### BETTANNAL AUDITING INTERNAL AUDITING

Auditor's concern (1) Under basic (1) Virtually with efficiency, responsibility, not concerned with all effectiveness, and concerned with aspects of efficieneconomy.

economy of controls or operations and only with effectiveness of internal jectives, controls accounting controls and operations. in relation to the reliability of accounting information from which financial statements are produced.

cy, economy and effectiveness of enterprise ob-

NOTE: To a maximum of 14 marks.

10 Q.9 Source: Text pp. 403-409, Lesson 5.

NOTE: 1 mark each.

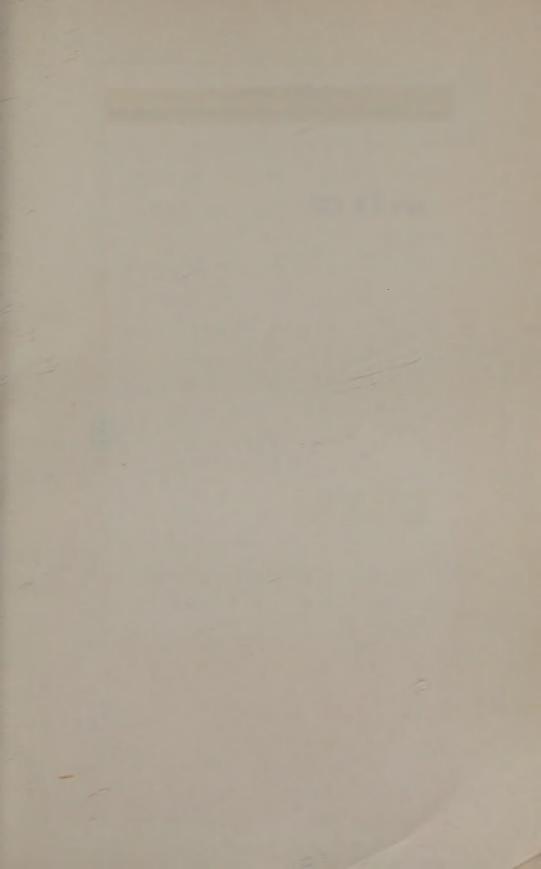
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- (b) ii
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END W SOLUTIONS







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